

THE MEDICAL AND SURGICAL REPORTER.

No. 2016.

SATURDAY, OCTOBER 26, 1895.

VOL. LXXIII—NO. 17

ORIGINAL ARTICLES.

SURGERY IN THE SWAMPS—A CASE OF SUPRA-PUBIC LITHOTOMY.

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J. R., white, aged eighteen years, consulted me for incontinence of urine with constant pain and discomfort in the genitals. The trouble was worse at night, as he would be required to rise a number of times to pass a small quantity of urine, for neglect to do so from fatigue was invariably followed by soiled bedding. A specimen of his urine, which he had brought with him, I tested with the following results: Color, straw; reaction, alkaline; sp. gr., 1015; albumin, a trace; sugar, none. Under the microscope, a drop of the sediment showed pus corpuscles, bladder epithelium, crystals ammonio-magnesium phosphates, octohedral crystals oxalate of lime, and a deposit of amorphous lime phosphates.

Suspecting stone from the history and the condition of the urine, I introduced without difficulty a Thompson stone-searcher into the bladder, and turning the instrument to the left, the characteristic "click" was audible to both the patient and myself.

The patient complained of feeling nauseated, so I withdrew the sound and

requested him to return the following week for a more thorough examination. In the interval, to acidulate the urine, he should take the following:—

B.	Bicarb. Sod.	drams, ii.
	Phosph. Sod.	" iv.
	Pulv. Acaciae } aa.	" ii.
	Acid Benzoic. }	fl'd " iv.
	Spt. Nitrosi dulc.	fl'd oz. vi.
	Aq. Menth. Pip. q. s. ad. fl'd oz. vi.	

M. Sig. Tablespoonful, in water, morning, noon and night.

He returned the following week, and expressed himself as greatly benefitted by the medicine. I then made a more extensive examination with the sound, and discovered the calculus to be about the shape and size of an egg. The danger and necessity of an operation was explained to himself and family, but he declared death preferable to the tortures he had endured for the past twelve years.

Monday, September 16th, he came to my office, and after a preliminary hypodermic injection of morphia $\frac{1}{4}$ gr., atropia, $\frac{1}{10}$ gr., he was anesthetized with chloroform by Dr. E. H. Smith

and removed to a rear room. Pubes and abdomen were washed with a 1 to 1000 bichloride solution, shaved and rinsed with a solution of iodoform in ether, a Peterson's colpeurynter was introduced into the rectum and inflated with 8 ozs. of water. The bladder was washed out with a solution of borax, 10 grs. to 1 oz. of boiled water, then distended with about 6 ozs. of the same fluid, introduced through a silver catheter, which was plugged, and two turns of a rubber tube around the penis, secured by haemostatic forceps, shut off any escape of fluid. His feet were then made fast to the table, and a three inch incision made in the median line above the pubes and carried in a few strokes to the junction of the recti muscles. I was sponging the orifice and seizing a number of bleeding points with the forceps, when the patient suddenly ceased to respire and his face rapidly became cyanosed. I immediately forced his jaws open with my left hand, and seized his tongue with a pair of forceps, while Dr. Smith tilted up the table. In a few moments he began to breathe easily, and the doctor resumed the administration of the anesthetic. The colpeurynter, having been emptied by contractions of the abdominal muscles, required refilling. I removed the forceps which had checked all oozing from the wound, sponged out the cavity and made a clean incision through the median line to the thin layer of tissue over the peritoneum. This tissue was picked up with the forceps, carefully incised, and, introducing the tip of the forefinger, the peritoneum was reflected back on the distended bladder. Passing a strong ligature through the upper portion of the organ, I steadied it with my left hand, and with the right hand cut downward with a bistoury a distance of $2\frac{1}{2}$ inches. This was followed by a gush of fluid, through which I passed two fingers down to the base of the bladder, and felt the stone lying freely movable. Introducing a pair of dressing forceps I seized and extracted it with but little difficulty. Three sutures were next passed through the bladder walls, muscles and skin, on each side, to prevent infiltration of urine; two drainage tubes, joined about five inches from the lower extremities, were passed to the bottom of the blad-

der and brought over the pubes for drainage; catheter and colpeurynter removed, and the wound dressed antiseptically.

He reacted nicely, and for the first twenty-four hours nothing was given except a little water occasionally to allay thirst. At the end of that period I changed the dressings and washed out the bladder with a solution of 10 grs. of borax to 1 oz. of hot water. His temperature was $99\frac{1}{2}$ °; pulse, 84; respiration, 18. I began to administer nourishment in the form of 4 ozs. of milk every three hours. At the end of forty-eight hours (about noon) his temperature rose to $101\frac{3}{4}$ °, but about 4 P. M. subsided to 99° in a mild perspiration. Believing malaria to be the cause of the rise in temperature, I administered 5 grs. of quinine, and continued to give 10 grs. daily until the seventh day. On the seventh day I removed the drainage tubes and passed a catheter. On the eighth day the patient sat in an easy chair for a short time until his bed was changed; and he continued to sit up every day until the thirteenth from date of operation, when he rose, dressed himself, and rode home in a carriage, a distance of eight miles.

He called to see me the other day (about the twenty-seventh since the operation), and reported the wound as entirely healed, and the urine as passing through its natural orifice. The calculus weighed $2\frac{1}{2}$ ozs. and measured in long diameter $5\frac{1}{2}$ inches, in short diameter $4\frac{1}{2}$ inches.

Hydatidiform Mole and Malignant Deciduoma.

Fraenkel (*Archiv f. Gynäk.*) has recently added to our knowledge respecting the malignant changes which sometimes take place in the uterus after gestation. Undoubtedly malignant deciduoma is often, on clinical evidence, associated with hydatidiform mole. Small portions of a mole of this class usually remain behind after the greater part has been expelled. The superficial epithelial layer (syncytium) of the chorionic villi proliferates considerably when a vesicular mole develops. It is precisely from this abnormal development of epithelium that the cancerous change known as malignant deciduoma is evolved.

RESPIRATION, SUFFOCATION AND RESUSCITATION.*

THE MAIN PHYSIOLOGICAL FACTORS WHICH PLAY THE RÔLE IN RESPIRATION, SUFFOCATION AND RESUSCITATION, AND THE AUTHOR'S METHOD OF PNEUMATIC ARTIFICIAL RESPIRATION.

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[CONCLUDED.]

If we have gained some idea of respiration, we shall be able to understand what suffocation is, and why carbonic acid in the air is so injurious. Carbonic acid is not a *poison*, as was formerly maintained. Its accumulation in the blood is only fatal where there is such an accumulation in the atmosphere as prevents its *exhalation*; its mere presence seems to be quite harmless even in large quantities, provided always that it is not retained there. Carbonic acid when absorbed into the blood, which is alkaline, cannot there exert its irritant action as an acid because it will either be transformed into a carbonate or be dissolved. Bernard has injected large quantities into the veins and arteries and under the skin of rabbits, and found no noxious effect ensued. The more carbonic acid there is in the blood, the more will be exhaled, provided always that the air be not already so charged with it as to prevent the exhalation.

Oxide of carbon seems, however, to be truly a poison. The blue flame which rises from the coals or lighted wood is this same oxide, the product of an imperfect combustion; and being notoriously poisonous, it has by some writers been selected as the real agent in those numerous deaths by asphyxia, which have occurred from voluntary and involuntary exposure to the fumes of charcoal in closed chambers, etc. Other methods could have been selected, but one is sufficient for illustration. Carbonic acid was said to be innocent, and oxide of carbon had to bear the whole infamy. There is no doubt, however, that although carbonic acid is not a poison, it will produce asphyxia, and deaths from charcoal fumes may occur

either from this asphyxia or from poisoning by oxide of carbon, or from a conjunction of the two. Oxide of carbon is truly called a poison, because its action is deleterious even in slight doses, no matter what may be the state of the atmosphere; but carbonic acid is only deleterious when the quantity in the atmosphere is such that the absorption of oxygen is frustrated. But how does this oxide of carbon act? If venous blood be exposed to it, we see at once the change into scarlet blood takes place. It acts on the blood-like oxygen? you will ask. Not precisely; for if venous blood be exposed to oxygen, it becomes scarlet; but when left to itself, it becomes black again (except on the surface), probably because the oxygen has gradually formed carbonic acid. After exposure to oxide of carbon, the blood remains scarlet for days and days—nay, even for weeks, according to Bernard. Prussic acid acts in a similar manner. Poisoning by prussic acid or oxide of carbon may be detected by this scarlet color of the venous blood.

The effect of oxide of carbon is to render the blood disks incapable of that process of exhalation, on which, as we have seen, the activity of the organism depends. The blood, to all appearances, preserves its vitality, for neither the form nor the color of its disks is altered; but the blood is really dead, because its restless changes are arrested. Ever wonderful is the fact, constantly obtruding itself upon us, that life is inseparably linked with change and that every arrest is death. Only through incessant destruction and reconstruction can vital phenomena emerge, an ebb and flow of being. The moment we

preserve organic matter from destruction we have rendered it incapable of the restless strivings of life. A spirit like that of Faust seems ranging through all matter ; and if ever it should say to the passing moment, "Stay ! thou art fair," its career will be at an end.

The reader has doubtless often heard with surprise that the rusting of iron, the burning of a candle and the breathing of an animal are only three forms of the same process, three names for combustion or oxidation. There is a certain fascination in such generalization, and one always regrets to find them not correct. The rusting of iron and the burning of a candle are indeed two forms of one oxidizing process ; but respiration can no longer be considered as in any sense a process of combustion—it is a two-fold process of exhalation and absorption. The interesting experiments of Priestley will enable us to set forth the differences between respiration and combustion. He placed mice into a bell-glass, where in due time they were suffocated by the air which they had vitiated ; other mice were introduced, and they expired immediately. In another bell-glass a candle went out, after having in its combustion absorbed a part of the oxygen ; another burning candle was introduced, and it was at once extinguished by this vitiated air. In both of these vessels some mint was placed, where it flourished, and so completely revivified the air by absorbing its carbonic acid and giving out oxygen, that mice could again breathe in the one, and a candle burn in the other. In these experiments we seem to have a demonstration of the identity of combustion and respiration—and this, indeed, was the conclusion drawn ; but that the conclusion is erroneous, appears from the experiments of Claude Bernard, who takes a bell-glass containing an atmosphere of 15 per cent. of oxygen, and two per cent. of carbonic acid—the rest of the oxygen having disappeared to form water with the hydrogen of the candle which had just gone out. In this atmosphere, in which a candle will not burn, a linnet will breathe at ease for some time. He reverses the experiment and makes an atmosphere in which a candle will burn, but in which an animal instantaneously perishes—an at-

mosphere composed half of oxygen and half of carbonic acid, in which a candle will burn better than in the air, because, in spite of the amount of oxygen, that oxygen cannot be absorbed. The bird, when about to expire in vitiated air, will be recalled to life if the carbonic acid be removed by the introduction of potash, showing that it is owing to the presence of this carbonic acid that respiration is impeded ; but we cannot thus restore the expiring flame of the candle by removing the carbonic acid. Take two bell-glasses, and as soon as the combustion grows feeble, introduce into one glass some potash to remove the carbonic acid ; you will, nevertheless, find that the candles in both glasses will go out at the same instant. The experiment is very simple, and its significance is plain. By it we see the difference between combustion, which is only oxidation, and respiration, which is not oxidation but exchange. In the combustion of a candle the oxidation is everything, and no process of exchange takes place. In the breathing of an animal the exchange is everything. The candle expires because there is not enough oxygen in the air ; the animal expires because there is too much carbonic acid in the air.

Further, to prove that respiration is an exchange of gases in the lungs and not a process of oxidation, we need only refer to the experiments of Spallanzani and W. Edwards—experiments so celebrated that one is amazed to find one's self citing them in this discussion, which they ought long ago to have closed. These physiologists found that cold-blooded animals will breathe in an atmosphere of pure hydrogen, almost if not quite as easily as in ordinary air ; the carbonic acid is exhaled and hydrogen absorbed.* This proves that carbonic acid pre-exists in the blood, and is not formed during respiration by the oxygen as it enters ; and proves, likewise, that the respiratory process is one of exhalation and absorption, which can take place as well with hydrogen as with oxygen ; and we are thus forced to exclude the idea of oxidation altogether. Although respiration can take place

*The same is true of warm-blooded animals when newly born, but after they have breathed for a few hours, they no longer possess this capability. The reason is unknown.

without oxygen, life will not long continue without it; for, as before stated oxygen is the power which burns organic matter into life.

Why is death inevitable when the access of fresh oxygen is excluded? The fact we know—of the reason we are ignorant. There still remains a large quantity of oxygen in the blood of the expiring animal; nor will death be sensibly retarded if fresh oxygen is injected into the veins and arteries. How is this? The process of respiration brings oxygen to the blood; yet, if the oxygen be brought there through a more direct channel while respiration is impeded, the animal will die as quickly as if left to itself. Bernard tied a dog's head in a bag, which would in a certain time produce suffocation, and he found that period by no means retarded when he injected oxygen into the arteries.

Quitting for a moment this labyrinth of difficulty and doubt, which alternately fascinates and disheartens us when we strive to gain some explanation of the myriad processes of life, let us stand apart and contemplate the marvel of respiratory interchange no longer as an animal function, but rather as a planetary phenomenon; let us endeavor to picture to ourselves the silent creative activity, everywhere dependent on this interchange. The forests, the prairies, the meadows, the corn-fields and gardens—the mighty expanse of plant life covering mountain and valley—subsist on the carbonic acid which is exhaled from the lungs and bodies of animals. Plants take up this carbonic acid from the atmosphere, mould the carbon into their own substance, and set free the oxygen, once more returning it to the atmosphere. Animals reverse the process, taking up the oxygen and giving out carbonic acid for the nourishment of plants. This beautiful rhythmus of organic life has been so often described, that it has almost become commonplace, without, however, losing its charm for the contemplative mind. The dependence of plant on animal and of animal on plant, united in one mystery, and ever acting each for the advantage of the other, is not an idea to lose its charm by becoming familiar; but it sometimes leads to misconception. What, for instance, seems more natural than that

the influence of trees planted in our cities should be very beneficial? If trees can thus withdraw the noxious carbonic acid from the vitiated air of cities, would it not be desirable—nay, ought it not peremptorily to be demanded—that as many trees should be planted in our streets as we can find room for? Such conclusions are soon reached by swift logicians. But Nature is apt to elude the grasp of swift logicians, and she repeatedly declines to fall into the symmetrical of their formulas. Not that Nature is capricious or illogical, but logicians are apt to draw inferences before they have collected sufficient data. Nature, in the present case, point-blank declares that the influence of vegetation on the atmosphere is totally inappreciable, unless the atmosphere be in a closed chamber or vessel, and then the influence is striking. Human wit has discovered no test delicate enough to appreciate the influence of plants on the free atmosphere in which we live. The depth and compass of this air-ocean are too vast and the amount of oxygen absorbed by animals too trivial in comparison for any effect to be appreciable; moreover, the mixture of the gases in the air and their mutual diffusion is so rapid that no difference has yet been detected in the proportions of oxygen and carbonic acid in the air of crowded cities, towns or wooded valleys.

The air of cities will hold more noxious exhalations suspended in it, but its gaseous composition will be the same as that of the country. To give an idea of the insignificant part played by animals as vitiators of the great air-ocean, we may mention the calculation made by the distinguished chemist Dumas, that all the oxygen consumed by all the animals on the surface of the globe during 100 years would not amount to more than $\frac{1}{500}$ of the quantity in our atmosphere; and even supposing all vegetation to be annihilated, consequently no oxygen to be returned to the air by the incessant reduction of the carbonic acid, there would still be needed a period of 10,000 years before the diminution of the oxygen could become appreciable by any instruments we have hitherto invented.

After having thus described the essential characters and conditions of the res-

piratory process, it will be interesting to glance at the results obtained by various investigators respecting the variations among different animals, and in different states of the same animal. We learn, for example, without surprise, that animals of large bulk consume more air than the smaller animal; horses and oxen more than men; men more than dogs and cats. But to use an Eastern figure, it raises the eyebrows of astonishment when we learn that the proportion of carbonic acid exhaled by a man and a horse bears no sort of correspondence to the difference in their relative bulk—the proportion being 187 to 16. We are, in like manner, puzzled to find that a full-grown cat only exhales one and two-thirds of carbonic acid, where a rabbit more than two. How is this to be explained? Is there not a streak of light trembling on this question when we bring forward the fact previously mentioned, that the vegetable feeders uniformly exhale more carbonic acid than the animal feeders, and that carnivorous animals exhale more than their usual quantity if they are fed on vegetables? Some light may fall from this source, but it does not suffice to clear up the obscurity. Another interesting problem also arises here. Although the larger the animal the greater is the absolute amount of carbonic acid it produces,* yet the smaller the animal the greater is the relative amount it produces. Thus, supposing the production of carbonic acid be estimated according to each pound weight of the animal, then we shall find that the smaller the animal the greater will be its proportion. But it is not size and weight alone which determine the difference in the amount of air consumed; far greater differences will arise from the varieties of organization. We may accept it as an axiom in physiology that the activity of respiration is inseparably connected with vital activity; not simply muscular activity, as some writers maintain, but all processes whatever involving chemical within the body. The most striking confirmation of this axiom is

perhaps to be seen in the phenomena of hibernation or winter sleep. No sooner are the vital functions reduced to this extremely feeble condition, in which we may almost say life is suspended, than these hibernating animals are so incapable of ordinary respiration that they may be placed in an atmosphere of pure carbonic acid and remain there unhurt for four hours; whereas if they were placed in such an atmosphere when their breathing was going on they would instantly perish.

One would imagine, on hearing this, that our ordinary sleep would also bring with it a diminution of the quantity of air consumed. And in as far as sleep may be considered a diminution of the vital activity, such a conclusion must be correct. But in how far is sleep a diminution? That is a question not hitherto asked, consequently without as yet an answer. In sleep there is very obvious diminution of some forms of vital activity, but we are by no means sure that the organic changes are so much less rapid on the whole. We are led to this by the experiments of Molesschott and Böcker, which establish that the chief cause of the difference noticed between the amount of carbonic acid produced during the day and night is the influence of *sunlight*; and that a man lying quietly awake will produce less instead of more than a man asleep, if the conditions of light and temperature are the same. Sleep, as sleep, is not, therefore, a diminution of the vital activity; although the sleep which we take at night after the fatigues of the day must, of course, be considered as accompanied by a diminution. It is quite certain that, partly from fatigue and partly from the absence of sunlight, less carbonic acid is formed at night than during the day. Boussingault found that the same turtle-doves during day and night showed a difference of ninety-four and fifty-nine on one occasion, and of seventy-five and fifty-three on another. Lehmann confirmed the observations.

If it be true that all vital activity increases the amount of carbonic acid exhaled, and if every diminution be accompanied by a corresponding diminution of the amount, we may readily believe that intellectual fatigue and the lassitude which succeeds mental or emo-

*This applies, of course, only to animals of the same kind. "Vous serez étonné," says Spallanzani, "quand je vous dirai qu'une larve du poids de quelques grains s'apprête presque autant d'oxygène dans le même temps qu'un amphibié mille fois plus volumineux qu'elle."—*Mémoires sur la Resp.*, p. 69. This is because the insect lives so much more rapidly than the reptile.

tional excitement will be accompanied by a corresponding depression of the respiratory function. Nay, even the concentration of the mind on any subject will produce this. Everyone knows the state of "breathless attention." Whenever the mind is preoccupied by a powerful impression of some duration, the breathing becomes so feeble that from time to time we are forced to compensate this diminished activity by a deep inspiration. This is the rationale of *sighing*, an action commonly attributed only to grief, but which is the accompaniment of all mental pre-occupation. The philosopher brooding over his problems will be heard sighing from time to time almost as deeply as the maiden brooding over her forlorn condition. All men sigh over their work, when their work deeply engages them; but they do not remark it, because the work and not their feelings, engages their attention, whereas during grief it is their feelings which occupy them.

It is an interesting fact, and one which throws light on the intimate connection between respiration and vital activity, that a very considerable increase in the production of carbonic acid swiftly follows after eating; consequently an enormous reduction in the amount is found to accompany starvation. The fact was established by Spallanzani, and has been repeatedly confirmed. Boussingault found that pigeons, when fasting, did not produce half the amount which they produced when well fed. Spallanzani suggests that the food during digestion gives off carbonic acid, and this passing into the blood is exhaled in respiration; a suggestion which receives additional force from the fact that vegetable food uniformly produces more carbonic acid in respiration than animal food. But this will scarcely account for the whole of the increase and we are led to seek in the greater activity of the nutritive processes for the other cause thereof; the fasting animal has a depressed vitality.

Temperature has considerable influence on respiration. The fact has been ascertained by experiment, but it might have been deductively established; for the influence of temperature on the vital activities is well known, and whatever influences them must effect respiration.

It is only by the aid of such an axiom that we can find our way amid the apparent contradictions of this subject. The remarkable difference noticed between the capabilities of warm and cold-blooded animals in breathing vivified air is not less than the difference in the effect of temperature on these two classes. We remember our astonishment on learning from Spallanzani that increase in the temperature brings with it a uniform increase in the amount of oxygen absorbed by mollusks and reptiles; it was a statement in direct contradiction to the well-established fact in human physiology, that more oxygen was absorbed in cold than in hot weather. Our difficulty was lightened, however, when we learned that Spallanzani's statement is only true of cold-blooded animals and true of them only within certain limits; too great a heat ceases to increase the amount and gradually diminishes it, as with warm-blooded animals. What are these limits and why this cessation of increase? The limits are these: Take a frog and place it in an atmosphere a little above the freezing point; as the temperature rises from 36 degrees to 45 degrees Fahrenheit, the amount of oxygen absorbed uniformly increases; it remains nearly stationary from 45 degrees to 57 degrees; at 58 degrees it begins to decrease, and this decrease continues until 104 degrees is reached and then the frog perishes. The reason is very simple: A certain amount of heat stimulates all the vital functions of the frog and consequently increases its need for oxygen. When the heat becomes too great it ceases to be a stimulant and depresses the functional activity, till at length a point is reached when the organism can no longer exist.

On warm-blooded animals, the effect of temperature is apparently different, but really the same. Every increase of heat is found to diminish their respiration, every increase of cold to augment it. Thus it is ascertained that the smaller mammals, at a temperature of 86 degrees to 104 degrees, Fahrenheit, consume one-half the quantity they consumed at freezing point. Various experiments on man have elicited the general fact, that under the influence of a moderately cold atmosphere the respiration

tion is increased by one-sixth more than in a moderately warm atmosphere. Precisely as too intense a degree of heat diminishes the respiration of the frog by enfeebling its vital activity, does too intense a degree of cold diminish the respiration of a warm-blooded animal by enfeebling its vital activity. There are certain limits of temperature within which every increase of heat raises the respiration of the frog, because the increase raises its vital activity; but if these limits be overstepped the stimulant is changed into a debilitant.

We see this very curiously illustrated by the hibernating animals, the dormouse, marmot, bat, hedge-hog, etc. They occupy, in this respect, an intermediate position, between the cold-blooded and warm-blooded animals; for although they are really warm-blooded animals, the effect of temperature on them is closely allied to that produced on the cold-blooded. No sooner is there a fall of external temperature than their respiration diminishes. Unlike the rest of warm-blooded animals, their organism seems to have little power of resisting the changes of external temperature; they cannot produce heat with sufficient rapidity to counterbalance the loss they sustain from the surface of their bodies when the air is cold. Instead of acting on them as a stimulus, which would accelerate the respiratory process, cold acts on them with a depressing influence which gradually reduces their respiration almost to zero. But no sooner have they passed into this Winter sleep, and their organic activity has become almost null, than we can at pleasure reawaken it to any degree by raising the surrounding temperature, and as the vital activity once more begins to manifest itself, the respiration (which is only one form thereof) likewise becomes manifest.

Why do we breathe?

The foregoing pages have given some answer to the question, *How* do we breathe? but have not hinted at the why; yet after reading about the respiratory process, a natural curiosity prompts the inquiry as to its cause. Unhappily, nothing but extremely vague answers can be given. We know that the chest expands and contracts with beautiful rhythm, and mostly as an in-

voluntary automatic process. We know that our attention is not required, that no effort is needed, and, indeed, that no effort of ours can prevent the regular alternation of inspiration and expiration. We can by an effort accelerate or retard these motions, but we cannot prevent them. The process, then, clearly depends on a stimulus given to the involuntary part of the nervous system; it is called into action by nervous stimulus, and physiologists have vainly endeavored to discover the nervous apparatus which is involved and the rationale of its action. The pressure of carbonic acid in the air cells, or of venous blood in the capillaries, may act as a stimulus to the pneumogastric nerve; but what is the rationale of whipping a newly-born child's back and continuation, as a means of making it draw breath? Generally the stimulus of the cold air on the child's face suffices to make it draw breath, which it expires again in a well-known cry, to mother's ears most musical; but this stimulus is often insufficient, and the doctor or nurse initiates the little stranger into that experience of "external local applications," which, in later years, will also be freely used as a stimulus to virtue or learning. The fact we know, but why such "local applications" excite the respiratory activity we do not know, for we do not know the nervous apparatus which regulates the actions of respiration. It is probable that the researches of physiologists will, ere long, clear up this point, as they have cleared up so many others; meanwhile we must content ourselves with vague answers to our question, "Why do we breathe?"

Placental Circulation and Morphinomania.

Bureau (*Report. Universel d'Obstet. et de Gynéc.*) attended a patient who had taken morphine for seven years, and who, when he saw her, took as much as 15 grains of that alkaloid daily. She was pregnant for the fourth time. At length she was spontaneously delivered of a child with talipes of one foot. As the cord was divided Bureau collected the blood of the placenta and umbilical vessels. On chemical analysis morphine was detected in the blood.

COMMUNICATIONS.

TWENTY-SIX CASES OF PUERPERAL FEVER OBSERVED IN
BELVIDERE HOSPITAL.*

WILLIAM WATSON, M. D., GLASGOW.

These cases I have arranged in groups according to the clinical features present in each, and from the notes I submit, I will be able to make those classes quite clear.

Years of patient observation have not been able to prove the presence of a distinct specific micro-organism in puerperal fever, and now the impression is gaining ground that it is not an essential zymotic disease. Dr. Playfair, speaking of this disease, says in his book:—"If any real advance is to be made, it can only be by adopting a humble attitude, by admitting that we are only on the threshold of inquiry, and by a careful observation of clinical facts without drawing from them too positive conclusions." The small number of cases prevents conclusions being drawn, and it is only a record of the clinical observations I place before you now.

When we read of fearful mortalities in lying-in hospitals amongst puerperal women, and of medical men passing through distracting times when childbed was to them almost synonymous with deathbed, we cannot wonder that this disease was regarded as being quite as specific as the plague, cholera, or smallpox. But, so far, pathologists have not been able to support this view. The only organisms got are the ordinary pyogenic ones, and in most cases a distinct lesion is found on the generative organs accounting for death.

Of the twenty-six cases, eleven were included under the puerperal septicæmias class; one was a case of lacerated perineum with bronchitis; three were cases of pelvic cellulitis; five of enteric fever; one of scarlet fever; two of pyæmias; one of pneumonia; one of puerperal

mania; and one, which died a few hours after admission, had symptoms both of metritis and general peritonitis.

Of the eleven puerperal septicæmias, seven died and four recovered; the three pelvic cellulitis cases, the case of lacerated perineum, the scarlet fever case, and four of the five enteric fever cases recovered; while the case of mania, the two cases of pyæmia, and the case of pneumonia died—in all, thirteen died and thirteen recovered.

None of the cases admitted were in the early stages of the disease, and no case died without there being a local lesion accountable for death. Hence, I cannot speak of that class of puerperal fever cases where the patient, after a sudden, short, and severe illness, dies without any pathological change being observed.

Infective organisms of all kinds seem to reach their greatest degree of virulence where large numbers of people are gathered together. We are not sufficiently well acquainted with the life histories of the different germs yet to dogmatise, but we have fairly good proof that they seem to pass through different stages to the virulent until they reach a stage when their action produces death with great rapidity. In a maternity hospital, where many women are lying in the puerperal state, should a septic case occur, all round it are suitable culture media for pyogenic organisms, giving these an opportunity for completing, in a very short space of time, their cycle of life, and arriving at their stage of greatest virulence. When we draw examples from the wards of our general hospitals, and see there how much more liable a case is to become septic; when we read of the fearfully septic conditions into which military hospitals got during the war,

* Read at a meeting of the Glasgow Medico-Chirurgical Society, May, 1895.—*Glasgow Med. Jour.*, Oct. 1895.

and how even the very slightly wounded died with amazing rapidity from blood-poisoning; when we look into prison statistics and see the relatively high death-rate from typhus fever or small-pox, it makes us lend our support to the view that the more rapidly an organism can pass through the various stages of its development, the greater will be its virulence.

I lately made a *post-mortem* examination on a woman who died two days after child-birth from eclampsia. The uterus was 5 inches long, and its walls about $1\frac{1}{2}$ inches in thickness. The cavity was filled with a large fresh clot, and the broad ligaments were free from any induration. If there is introduced into this clot before its expulsion or absorption any pyogenic organism, and if that organism is highly virulent, it is quite conceivable that death would take place before any definite pathological change occurred. In the same way, accounting for deaths in private practice, an obstetrician having anything septic about his person which he could introduce into this excellent culture medium would readily induce what is known as puerperal fever, and the termination of the disease would depend on the virulence of the organism and the constitutional resisting power of the patient. In connection with this we cannot lose sight of the autogenetic cases.

But leaving these cases, an example of which I cannot give you, and coming to those which, in my notes, I have called puerperal septicemias, I read what may be taken as a typical example.

M. D., at. 23, was admitted September 20th, on the sixth day of illness, having given birth to a six months' fetus five days before. There was evidently no excessive bleeding, and the afterbirth was expelled all right. She had complained of abdominal pain for two days. On admission, she seemed very ill, and was very nervous and excited. The tongue was moist, but slightly coated. The abdomen was full and very tender in the hypogastric region. The uterus extended $2\frac{1}{2}$ inches above the pubis, and its walls were soft and flabby. The os admitted the tips of two fingers, and there was an extremely putrid, half-sanguineous dis-

charge. The spleen was slightly enlarged. On the thenar and hypothenar eminences was a purplish mottling. She was at once put under chloroform by Dr. Nicol, and over a tablespoonful of placenta was scraped from the uterine wall. On the 27th, it was noted that her temperature, which had each night since admission been $102\cdot2^{\circ}$ F., was normal, and a marked general improvement had taken place in her condition. All discharges from the uterus had ceased. The uterus was very much smaller in size, the os much contracted, and the abdomen normal in appearance. Her mental condition, which had given rise to great anxiety at first, was quite clear. Pulse was good and her strength was returning rapidly. November 1st she was dismissed well, after being a little over five weeks in the hospital.

There is a considerable similarity between that case and the following, which, unfortunately, had a fatal issue.

Mrs. B., at. 25, was admitted on August 3d, having been confined on July 29th—i. e., her sixth day of illness. She was not long in labor, and birth seemed to be easy. Her sister, who came with her, said there was considerable, though not excessive, bleeding, and that the whole of the afterbirth did not come away. On the day following she took a shivering, and began to feel feverish. Patient on admission looked very ill. The eye was dull and heavy, and she looked pale and collapsed. Pulse was 140, bounding, soft, and compressible. Respirations were fifty-two per minute, and labored, as if she were in pain. Temperature, $102\cdot8^{\circ}$ F. The abdomen was very full and hard, and extremely tender to touch. Movement caused such pain as to make her gnash her teeth and shout in agony. She was at once put under chloroform. The uterus was found to extend to the umbilicus; the walls were dense, and the os uteri admitted the tips of two fingers. From it issued a bloody, very putrid discharge. On curetting, there was brought away a fairly large quantity of placenta from the upper left corner of the uterus. The uterus was doused with carbolic solution, and then she was returned to bed. In this case also there was the purple-looking flush on the eminences of the hands and feet. Tem-

perature in the evening was 102° F.; respirations, 56; and pulse, 136. Before, and also after operation, there were general twitchings of the body like the movements of chorea, and she was slightly delirious. During the night she was wildly delirious, and there was some difficulty in keeping her in bed. Pulse next morning was 170, and very weak; temperature, 103.4° F. The uterus was much smaller in size—two inches below the umbilicus. She was too weak to be douched. The purple color on hands and feet was much more distinct. She gradually sank, and, without further change, died after being about eighteen hours in the hospital. Unfortunately, a *post-mortem* examination was not granted, but there could be no doubt as to the presence of peritonitis following a metritis and parametritis.

The case of R. M. was one of great interest. She was 28 years of age, and was admitted on May 9th, having been confined seventeen days previously. Placenta was expelled three hours after birth of child. Following that, she began to shiver, and complained of pain in the abdomen and back. She had a severe headache, and was sick and vomiting. At the time of birth, and on several occasions since, she lost a great deal of blood. Discharges stopped two days ago. Temperature was 101.8° F.

Patient on admission looked very ill, was markedly anaemic, and had apparently lost a great deal of blood. Her skin was a pale lemon color. Her pulse was soft and compressible, but her tongue was moist and clean. The uterus was very large, fundus being felt 4 inches above pubis. The walls were dense, but the os uteri was not much dilated. No bleeding occurred after admission, but two days later, the uterus getting no smaller, she was curetted, and a considerable quantity of placenta was brought away.

On the 16th, it was noted that her condition was not yet satisfactory, she, on the previous evening, having had a shivering. Temperature was 102° F. She was not further disturbed, as she was sleeping quietly at the time.

On the 17th: "Patient seems to be doing fairly well. Temperature last night, 99.2° F.; this morning it is 97° F. She is still weak, but there are signs of

improvement. Bowels are loose, and there is great pain before movement."

On the following day: "Temperature keeps normal. Looks much better. Diarrhoea almost gone, and pain quite away."

On the 20th, her condition was not quite so favorable. On the evening of the 18th, after the above note was made, she had a rigor, and her temperature went up to 106° F. Since that time it is noted that her condition was very hopeless. Mouth was dry, and she had great difficulty in speaking. She was very languid, and could hardly lift her head from the pillow or move her hands.

On the morning of the 21st, there was a marked improvement. She looked brighter and stronger. Speech was freer and better. Tongue was cleaner. Pulse was 92, and very much improved in quality. Temperature on the previous evening was 99.2° F.; on that morning 98.2° F. Abdomen felt quite natural. There was a distinct systolic murmur heard at apex, and very well heard over the sternum. Diarrhea was again troublesome.

On the 25th: "This woman is now in a much more favorable state. The diarrhoea is well controlled. Temperature keeps normal, and the patient is looking much stronger."

Two days later the improvement was noted as being very pleasing. Color was much better, and strength was quickly returning. Appetite was improving. Progress continued satisfactory, and she was ultimately dismissed well.

Mrs. M., æt. 33, was admitted on January 5th. December 24th she had a flooding, and next day she was confined of a six months' fetus, after being eight hours in labor. There seemed to be considerable difficulty with the after-birth, the midwife saying that it had grown to her side, but ultimately stating that she had got it all away. There was a great deal of discharge after the birth. She did not feel quite well from that time, but complained of no pain. On the 31st, six days after the birth, the discharges stopped. Before admission she had a rigor. There was no milk in her breasts then, but she stated that milk had been present. Temperature was 101° F.; pulse, 120; respirations,

28. Patient on admission seemed sharply ill. The tongue was moist, and slightly furred. Pulse was weak. The uterus was large, reaching almost to the umbilicus. The os was widely dilated, and there was a faint puerperal septicæmic rash on palms. It was deemed necessary to curette, and patient was put under chloroform. The os then was found to admit the tips of two fingers. The uterus was dense and bulky, but moveable. Curette passed in for $7\frac{1}{2}$ inches. Previous to her getting chloroform there did not seem to be much pain on handling the uterus. There was a great deal of placenta adhering to the left posterior wall of the uterus, more than a tumblerful being removed. Next day the temperature was slightly elevated (103.4° F.), and she had a slight rigor. Pulse was 128, rather weak and compressible. There was very little discharge from the uterus.

On the 7th: "To-day an unfavorable change has come over this patient. She complained of pain in the head during the night, and a slight boggy swelling, with red edges, was noticed. This morning it has spread over the scalp, the lower border being on the brow, and leaving little doubt but that it is an erysipelatous attack. Temperature is 104.4° F.; pulse is 132, and poorer in quality than it was before. The uterus is smaller in size. The tongue is dry, but only slightly furred."

On the 9th, it was noted that the patient was much worse. She lay in a half comatose condition, and her extremities were cold. Pulse was very poor. Suppuration had commenced in the scalp. The abdomen was much improved however, the swelling being to a great extent gone, and the uterus not much more than half the size it was. The discharge had almost ceased, but gradually the patient got worse, and on the same day died.

I would weary you by the details of each case, so I have tabulated the prominent features that the grouping of the symptoms common to all may be simplified.

From the table, it will be seen that, with the exception of two cases, all of them presented some abnormality at birth, that abnormality having to do with the placenta. There was either

delay in its expulsion, mechanical interference, or bleeding. Alongside of this statement we may place the fact that in every case there was retained placenta. In rendering the diagnosis of this easy, the contents of the four intervening columns were of great assistance. In every one of the cases there was a mottled, purplish appearance on the eminences of the hands. In some of the cases this was also seen in the corresponding areas of the feet, but the habit of going barefooted in most of the women admitted prevented this being recognizable in most of the cases. This rash bears a strong resemblance to a rash seen in diphtheria in similar situations, where there are evidences of septic intoxication from necrosing material in the throat; but it is deeper in color and more mottled in appearance. In scarlet fever, in the palms and soles also, is seen a condition resembling this. There is, however, no mottling, and the coloration is so superficial in appearance that the parts appear to have been dipped into red ink. I had not been able to find any reference to this appearance in any writings on puerperal fever. Spergelberg mentions that erythemas are not rare. He states that only exceptionally do they start from diseased joints; usually they appear independent of them.

A general erythema is a common thing, due to the absorption of some deleterious material. This is often seen in the early stages of small-pox, enteric fever, and measles, accounting for these diseases often being mistaken for scarlet fever. Where there is a septic wound, a general erythema may be present. But in different diseases this eruption may choose a definite seat and appear in a definite character. I need not mention the common example of erythema nodosum in rheumatism, or the rashes due to different drugs, with which you are all familiar. After the rash of scarlet fever has disappeared, if the throat continues troublesome, especially if there is necrosis, there appears bright red patches over the extensor surfaces of the limbs. It is strange that this should differ from the appearances induced by the absorption of necrosing material from the same situation in diphtheria. This rash was not present in the pelvic cellulitis cases, nor in the mamma case;

and its absence from the enteric fever cases and the case of pneumonia was of great assistance in the diagnosis.

The large flabby-walled uterus—extending in almost every case to the umbilicus, and having a widely-dilated os, with, in the majority of cases, a putrid sanguineous discharge issuing from it—pointed to the presence of a foreign body in the uterus, and that foreign body in a necrosing condition.

In the cases I have read you may have noticed the rapid diminution in the size of the uterus after curetting, which almost proves that it is the presence of this foreign material which prevents the proper contraction of the uterus. In cases where the infection is autogenetic we are almost powerless, because the clot is at once inoculated; and though the uterus is douched out, there is a never-failing supply of pyogenic organisms. No doubt in many cases placenta is left and septicæmia does not follow. All that can be said is that placenta left in the uterus greatly favors the onset of septicæmia, as it acts as a source of irritation inside the uterus, and, by keeping the os. dilated, renders the admission of septic material much more easy.

Much has been said about the nature of the puerperal fever poison, but only the streptococcus and the staphylococcus have been discovered. Many have held that, by some peculiar unexplained means, a puerperal woman in contact with a case of infectious disease will take puerperal fever, and not the disease she is exposed to, the poison of the infectious disease being modified by the puerperal state. But surely, if we believe in the "breeding true" of the different infectious diseases, we cannot support this view. Much more likely is it that the septicæmia in the puerperal woman has been set up by the decomposing material in the infectious cases, because, apart from the true specific organism present, we could hardly look upon the atmosphere round them as being other than highly septic, especially in cases of scarlet fever, diphtheria, and erysipelas. The fact of Mrs. M. taking erysipelas while suffering from puerperal septicæmia proves that the poisons are not convertible, as we are sometimes told. In her case the

infection was attributed to a nurse who had come to the ward she was in from the erysipelas ward. In a discussion in this Society some years ago, a gentleman stated that he had seen puerperal fever give rise to erysipelas. In both, the streptococcus is found; but if both were due to the same micro-organism, why is erysipelas not much more common in the puerperal state; why do attendants on puerperal fever cases not suffer oftener from erysipelas; why do they not take erysipelas when they are directly inoculated with the discharge, as I have known them to be; and, lastly, how is it possible for the one state to be superimposed on the other?

Three cases I have separated from this list which might have been included in it. These are the two pyæmia cases and a case showing symptoms of metritis and peritonitis, but which died too soon after admission to allow of a sufficient examination. The pyæmia cases ran a course exactly similar to the other cases until, shortly before death, local abscesses occurred in different situations.

Mrs. M'F., æt. 35, was admitted six days after birth of her child. In the doctor's opinion it had been dead for about nine days. There was a great deal of bleeding, and the afterbirth came away almost at once.

The patient looked very ill. The mouth was dry, and there were sordes on the lips and gums. The tongue was coated and dry. The abdomen was full, the uterus being within an inch of the umbilicus. The os was widely dilated, admitting the tips of two fingers, and from it was a haemorrhagic discharge. Temperature was 103.6° F. On curetting, a large quantity of placenta was brought away. She passed a good night. Next morning pulse was 124, and temperature 103.4° F. That night temperature was 105.6° F., and the pulse 140. On the 24th it was noted that her condition was gradually getting more hopeless. The localized swellings on the fore-arms, which had appeared on the 21st, were deeper in color and painful, but not fluctuant. The eminences of the palms of hands had a deep, livid flush, but this was accompanied by no swelling. Small abscesses appeared in different parts of the body, the breathing got very difficult, and she gradually sank

and died on the 26th. Hence, beyond the appearance in the late stage of localized abscesses, there is nothing, either in the history or symptoms of this case, to dissociate it from the other class.

As regards treatment, many advocate that curetting should be held as a last resort, but considering the difficulty of thorough douching, and the soft, friable, spongy nature of the tissue we are dealing with, curetting would seem to be indicated at the very commencement. In fact, what appear to be good guides in the treatment of such cases are the following:—

If there has been a great deal of bleeding at birth, we may justly suspect the presence of some foreign body in the uterus. This may be a piece of adherent placenta, or some membrane which has become detached and is retained, and which is interfering with the proper post-partum contraction of the uterus. By using at once a douche curette with some hot antiseptic solution, this could be at once removed and proper contractions established. Should there be no more than normal bleeding, but the uterus remain large and walls flabby for some days, we should at once anticipate the onset of septic symptoms, and take suitable precautions.

Whenever there has been much manual interference, or instruments have been used, the uterus should be thoroughly douched out antiseptically.

Three of the cases were regarded as being pelvic cellulitis. We might as well deny that a cellulitis in the neck associated with a bad throat had no connection with that, as that there is no connection between a metritis and a pelvic cellulitis. From the anatomical structure, if there is a metritis associated with decomposing material in the cavity of the uterus, it follows that there must be a certain amount of parametritis; but in the three cases under consideration, the uterus appeared almost normal.

I think there can be no doubt that a wide gap separates such a case as this from the ones I have previously given.

Mrs. M., æt. 23, was confined twenty-six days ago. It was a cross birth, and instruments were used. The placenta came away immediately afterwards, and was evidently all right. Two days later she complained of abdominal pain, and

was feverish. Temperature was 103° F.; pulse, 112, compressible and thready; respiration, 32.

On admission patient seemed very ill. The face was pale and studded with beads of perspiration. The tongue was moist and furred. The eye was clear and the pupils were dilated. The lungs and heart were normal. The abdomen was much distended and tender, and in the right lumbar region there was a large, bulging, painful mass. Between the pubis and the umbilicus the abdomen was tense to the touch, was dull to percussion, and very painful. The measurements were:—

Round abdomen at umbilicus	29½	inches.
Umbilicus to left iliac crest	7	"
Umbilicus to right iliac crest	6½	"
Umbilicus to ensiform cartilage	7	"
Umbilicus to pubis	6½	"

She could not lie on her back on account of the pain, and was most comfortable when lying on her left side. On per vaginal examination, the os uteri admitted the tip of the fore-finger. The uterus was buried in a dense, immovable mass, and admitted a gum elastic catheter for 5½ inches. There was a slight yellow discharge, but it was not bad smelling. Urine contained a small quantity of albumen. The breasts were not developed. Three days later the pain was very much less. Patient seemed stronger, and the tongue was clean and moist. November 3rd the following note was made: "The improvement in this woman's condition to-day is very marked. Both the pain and fullness are almost entirely gone. She can lie easily in any position, and turns now without pain. Diarrhoea is now giving some trouble. The circular measurement was less by 3½ inches; from the umbilicus to the left iliac crest, by ¼ inch; to the right, by 1 inch; to the ensiform cartilage, by 1 inch; and to the pubes, by 1 inch." November 7th there was still a slight tenseness in the abdomen. The uterus had contracted in size, and the os was no longer patent. Unfortunately, before going she took enteric fever, but was dismissed well December 31st.

One of the other cases corresponded almost exactly with this one in every particular, but her stay in bed was of great length, as, every time she at-

tempted to rise, the pain and swelling returned to the iliac region. The third case was admitted twelve days after the birth of child, which was easy and natural. Three days following that she sprang suddenly out of a high bed, and two hours later was seized with severe pains in the lower part of the belly. She had a distinct painful mass in left iliac fossa. In none of the cases did suppuration follow, and beyond the presence of diarrhoea—which was also a troublesome feature in first case—this patient made a satisfactory recovery.

In these cases, no rash was present, and from the condition of the uterus one felt sure of the absence of membrane or placenta. Two of them had a distinct history of injury. The third was a primipara, but if it is true, as Lund as-

serts, the straining at stool can cause pelvic cellulitis, surely the severe straining at parturition is a much more probable cause of injury. From the arrangement of lymphatics, if there was a breach of surface and the absorption of putrid material from the lower part of the generative tract, we would expect a pelvic cellulitis with little or no interference with the uterus, provided that the clot there did not become inoculated, but I think it might be also readily accepted that we have cases of pelvic cellulitis due merely to the mechanical injury of the cellular tissue, and not due either to the direct action of micro-organisms or to the spreading of the inflammation around an enlarged pelvic gland.—*Glasgow Med. Journal*, October, 1895.

Name.	Age.	Complica-tions.	No. of days since birth.	Abnormalities at Birth.	Septic Rash.	Size of Uterus.	Condition of Os Uteri.	Discharges.	Presence of Placenta.	Result.
Mrs. M'K.	32	.....	9	First child; severe hemorrhage.	Present	Very much enlarged.	Gaping.	None since admission	Considerable quantity removed.	Well
Mrs. M.	28	Persistent diarrhoea.	17	Placenta expelled, three hours after birth.	Do.	4½ in. above pubis.	Patent.	Occasional bleeding; none for two days.	Large quantity removed.	Do.
Mrs. S.	32	Mind slightly unhinged.	4	Difficulty with placenta; expelled twenty-five minutes after birth; considerable bleeding.	Do.	Extending to umbilicus.	Widely dilated.	Bloody, putrid.	Considerable quantity removed.	Do.
Mrs. B.	25	Peritonitis.	5	Difficulty with afterbirth; considerable bleeding.	Do.	Do.	Admits tips of two fingers.	Bloody; very putrid.	Fairly large quantity.	Died
Mrs. W.	25	Do.	4	No history of anything abnormal.	Do.	Do.	Admits one finger.	Purulent.	Large quantity in left upper corner.	Do.
M. D.	23	Mind unhinged.	5	Premature.	Do.	2½ in. above pubis.	Do.	Extremely putrid; half-sanguineous.	More than a tablespoonful.	Well
Mrs. D.	32	Double pneumonia	10	In labor for 24 hours; no excessive bleeding; placenta small.	Do.	Extending to umbilicus.	Admits tips of two fingers.	Stopped.	A very large quantity, adhering to upper left posterior wall.	Died
Mrs. C.	21	Do.	5	Labor lasted 24 hours; severe flooding.	Do.	Do.	Do.	Putrid.	Considerable quantity of offensive smelling.	Do.
Mrs. H.	27	Mania.	7	Apparently natural.	Do.	Do.	Do.	Do.	Large quantity removed from ant. wall.	Do.
Mrs. M.	33	Erysipelas.	10	Severe flooding day before birth; premature.	Do.	Almost to umbilicus —7½ in.	Do.	Slight discharge.	More than a tumplie removed from posterior wall.	Do.
Mrs. Y.		No history got. admission.		Died an hour after	Do.	To umbilicus.	Do.	Putrid.	Not curetted, but post-mortem revealed large quantity.	Do.

*Uterus at death normal.

THE MEDICAL AND SURGICAL REPORTER

ISSUED EVERY SATURDAY

THE BUTLER PUBLISHING COMPANY, Publishers P. O. Box 843
104 Girard Building, Philadelphia, Pa.

HAROLD H. KYNETT, A.M., M.D., Editor

Entered at the Philadelphia Post-Office as second-class matter.

TERMS:—Three Dollars a year in advance. Sent four months on trial for \$1.00.
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PHILADELPHIA, SATURDAY, OCTOBER 26, 1895.

EDITORIAL.

PLEASE TAKE NOTICE.

The publishers of the MEDICAL AND SURGICAL REPORTER have been informed that one John J. Joyce, of Newark, New Jersey, assignee of Penfield Bros., has issued a circular letter to the subscribers of the REPORTER, directing them to make payment for their subscriptions to him.

Subscribers and all other persons having business with the REPORTER are hereby notified not to make any payments whatever to the said John J. Joyce.

All payments and all communications relative to the REPORTER should be addressed to "MEDICAL AND SURGICAL REPORTER, P. O. BOX 843, PHILADELPHIA."

Those subscribers who so kindly informed us of the receipt of the letter from John J. Joyce, and who have written to us about it, will please consider this notice an answer to their inquiries.

THE MEDICAL STUDY OF CRIMINOLOGY.

In the President's annual address before the New York State Medical Association, Dr. Austin Flint (*New York Medical Journal*) discussed "The Coming Rôle of the Medical Profession in the Scientific Treatment of Crime and Criminals." If the subject in itself is not novel, the presentation of it is peculiarly happy, and is remarkable as a moderate expression of unbiased opinion by a sincere student and keen observer, trained in science and gifted with common-sense.

Dr. Flint does not pretend to exhaust the subject nor to formulate suggestions, his object being that criminology and penology should receive more attention at the hands of the medical profession. Some of the views he advances are well worth pondering:

While it must be admitted that the treatment of crime and criminals, under existing laws and their methods of execution, is a failure, society is hardly prepared to accept the logical consequences of views such as Lombroso, in

"The Applications of Criminal Anthropology," quotes Rondeau as saying in an essay on the death penalty :

"Even assassins are patients, as well as all other criminals. They should be punished because they disturb the regular course of social life, because they are obstacles to the development of the species.

"Conceding that every crime is the natural outcome and a logical consequence of some disease, its penalty should be nothing else than a medical treatment."

The idea which underlies the views of Rondeau is that moral liberty has no existence, and that a moral evil is the result of physical fault. "In his system of repression all prisons would be transformed into hospitals; no attempt would be made to improve the organization of convicts. The thief and the vagabond would be treated by making them taste the joys of work, and in secluding for life those inaccessible to all treatment."

Sentimentality in questions of criminology and penology should be put aside. It has no more place in criminal law and penal administration than in medicine and surgery. Crime is a disease of our social organization. It is true that it is ineradicable, but it may be restricted within much narrower limits than at present exist. Crime calls for intelligent and scientific treatment. While crime can not be abolished, all criminals are not hopelessly affected with crime. Individuals may be protected against crime as Jenner has protected individuals against small-pox. Crime may be a constitutional disease, as in the born criminal, or it may be due, in individual cases, to surroundings, teaching, or example—a sort of contagion. It has been abundantly shown that criminals may be divided into two great classes, the curable and the incurable; but the disease which we call crime has nearly as many phases and varieties as are presented by the nosological catalogue. The treatment of criminals will resolve itself into measures to reform the curable and to protect society against the incurable.

A necessary preliminary to the intelligent treatment of any disease is a diag-

nosis, and this, which is one of the fundamental principles of the science of medicine, is logically applicable to moral as well as to physical or mental disease. It is universally recognized that the insane are not responsible for their acts to the extent of deserving punishment. The organization of society demands that there be protection against the harmful acts of the insane, and the dictates of humanity call for the protection of the insane against himself. It may fairly be assumed that no mental disturbance taking the form of insanity is without a physical cause, however obscure the cause may be. Is it possible that every moral delinquency has a physical cause? It is certain that nearly every confirmed and incurable criminal has a special leaning toward a certain class of crimes. Is there a physical vice or defect which leads to the commission of these crimes, when conditions are favorable to the full development of this vice and to its expression in criminal acts? These are questions that are occupying the minds of criminologists of the present day.

It is often said that the border line between insanity and crime is very narrow and indefinite. The plea of insanity, which is so often presented in extenuation of certain crimes, the irresistible impulse which some insane persons have to commit certain crimes—such as homicide, suicide, stealing, arson, etc.—would seem to show that insanity in some of its phases, readily fades into criminality, or that criminality may be the first manifestation of insanity. Nothing illustrates this idea more strongly than the distinctions that have been drawn between criminality and so-called moral insanity.

To my mind, it should not often be difficult to distinguish between criminality and insanity, provided the data from which to draw a conclusion be full and sufficient. There are the criminal insane and the insane criminal; the one, an insane person who commits crime under an insane impulse; the other, simply a criminal who has become insane. It might be difficult to fix the responsibility of the insane criminal if it were impossible to determine the time when he became insane; but there should be little difficulty in making a

diagnosis of the criminal insane. Other difficulties may also present themselves; An outburst of insanity, made evident by a palpably insane act, under the influence of what seems to be a sudden impulse or a recent delusion, has probably been preceded by a delusion or delusions carefully concealed. A criminal act, without insanity, may be discovered, the criminal having, during a long period of years, sedulously maintained the appearance of scrupulous honesty, often assuming the cloak of religion. In some cases of this kind, it has been maintained that the person is morally insane and is irresponsible. It has always been found very difficult to show that a person who commits a crime against property, with intelligent efforts at concealment, hoping and endeavoring to reap the advantages of his crime or attempting to escape its consequences by flight is irresponsible on any theory. A kleptomaniac steals simply because there is an impulse to steal which he can not resist. He does not profit by the crime and has no logical reason for stealing. The criminal, however, always expects and attempts to enjoy a personal advantage as the result of his crime, or he has a reason which to his criminal mind is logical. The existence of strong temptation, great need, or heavy financial burdens, sudden passion which has a logical cause, revenge or hatred engendered by actual injuries or wrongs, afford satisfactory explanations of many crimes, and enable us to determine the question of responsibility. I can hardly bring myself to a belief in the existence of what is called moral insanity, excepting the moral defects which are so often observed in dementia and senility, when certain passions remain and the normal power of self-control is impaired.

To Garofalo is due the credit of indicating differences between the criminal and the insane, which are clearly appreciable with very few exceptions. In the insane, the accomplishment itself of the criminal act is the end and object, and is, in itself, a source of pleasure and satisfaction. In the criminal, the act is done as a means of obtaining a material advantage, and the act itself may be repugnant. It is the abnormal nature of the pleasure and the fact that no other

satisfaction is sought for which characterize the insane and distinguish him from the criminal.

The classification of criminals is not difficult. Dr. D. Hack Tuke adopts the classification of Ferri, with slight modifications.

The criminal by passion, as a rule, has no criminal characteristics. He is simply lacking in self-control and almost invariably experiences remorse. Actually, a criminal from passion is not a criminal and is not a permanent enemy of society. It is necessary, however, to our social system that he should take the consequences of his criminal acts. He does not commit crimes against property.

The occasional criminal, or the criminal by occasion—may properly be regarded as belonging to the criminal class. He may or may not have an opportunity or undergo temptation to commit crime; but under temptation and with opportunity he may commit crime from mere weakness of character. Still, there is no occasional criminal who is without criminal tendencies in a greater or less degree.

The born criminal almost always presents physical signs of degeneration, and his history often reveals heredity or atavism, his moral criminal characteristics usually being intensified by surroundings. It is thought by some alienists and criminologists that there is often little difference between the born criminal and the victim of so-called moral insanity; but it must be admitted that a born criminal is seldom regarded as insane unless he belongs to the higher classes of society.

The professional criminal may be a born criminal, with physical characteristics, or he may present no physical abnormalities. The high-class professional is always a man of considerable intellectual ability, usually free from small vices, and a hard worker. It is pretty generally admitted that a professional criminal past the age of thirty can not be rescued from criminal life. The professional criminal is, of course, an habitual criminal; but other habitual criminals there are of less ability, whose methods of exercising their vocation do not entitle them to rank with professionals.

We have little or nothing to do, in a scientific way, with the criminal by passion. Sad experience and remorse may teach him a lesson and lead him to exercise self-control. He must accept the consequences of his criminal acts; but it is our duty, especially toward the young, to provide that he be contaminated as little as possible by surroundings while under control.

In the scientific study of crime, the physician has to do mainly with the occasional criminal, the habitual criminal, and the born criminal; and in this study, the first thing is to separate these from the offender who is not a criminal and the occasional criminal.

The born criminal is seldom without physical evidences of what is now called degeneration. He presents certain physical abnormalities. In fact, according to the notions of Lombroso and his followers, without such abnormalities he is not a born criminal. All of the purely physical characteristics observed in the born criminal are present to some extent in the normal man. Some of those which have been described by Lombroso and others are: peculiar skull and facial conformations; left-handedness and ambidexterity; absence of exaggeration of tendon reflexes; abundant hair on the head, with scanty beard; muscular abnormalities; anesthesia and analgesia; unusually rapid recovery from wounds, or "disvulnerability"; obtuse tactile sensibility; unusual acuteness of vision; defects in the sense of hearing, taste or smell; with many others less marked and regarded as of less importance. Take, however, individual instances in which even a considerable number of these abnormalities exist. We may have a person with a marked peculiarity in skull formation, a heavy jaw, abundant red hair, scanty beard, diminished knee-jerk, defective sense of contact, acute vision, dull hearing, taste, and smell, some muscular abnormality, and yet this person may pass through life honest and upright, showing no criminal tendency even when exposed to temptation and favored by opportunity; but it would be idle to say that, in a person who had committed a crime, physical abnormalities found to be more frequent in the criminal than in the normal man, and particularly fre-

quent in a certain class of criminals, may not be of great value in classifying the criminal, forming an estimate of his dangerous qualities and of the probability of reformation. A person may have the so-called insane ear or strikingly abnormal palate, great irregularities in the development of the teeth and an insane ancestry, and yet we must wait for positive evidence of insanity by word, deed, or action before he can be pronounced insane. So physical abnormalities, even with criminal ancestry, are never in themselves absolute evidence of criminality.

The weakness in the position that there are any positive physical tests for criminality is twofold. There is no fixed normal standard of comparison; and the exceptions in which physical peculiarities assumed to be characteristic of criminality exist in normal individuals are very frequent.

On the other hand, the mental and moral characteristics of criminality are fairly positive and definite. Given a number of persons who have committed actual crimes; meaning by this certain offenses against the person or against property which are violations of natural laws: These include homicides; all kinds of crime against property, with or without violence; felonious assaults; malicious injuries to person or property; the aiding and abetting of crime for gain, and other forms of crime which readily suggest themselves. There may be excluded: offenses against good order or discipline, not in themselves criminal; purely social offenses; purely political offenses; honest differences from prevalent opinion on political, social, or religious questions; offenses against laws which restrict the natural rights of man; offenses innocently committed through ignorance, etc. The mental and moral peculiarities or abnormalities of these individuals may well be made use of in diagnosis, classification, and treatment. Taken in connection with these, the purely physical abnormalities become of great importance, as they do in the diagnosis, treatment, and prognosis of insanity.

The criminal by passion alone, is a normal man, but deficient in self-control under provocation or strong emotion. He presents no criminal history. The

criminal act is followed by the deepest regret and intense remorse, usually with a desire for all possible reparation.

The criminal by occasion, or the one who commits a crime when occasion presents itself in the form of temptation and opportunity, may lack physical and moral characteristics of criminality and have no criminal heredity, being simply of a weak and pliable organization. This unfortunate should be treated most carefully, and be protected, as far as possible, from influences which may render him an habitual criminal.

The professional and the habitual criminal are the most dangerous enemies to society. Criminals belonging to this class form a criminal organization ruled by the dominating personality of those of superior intelligence. They may possess few, if any, abnormalities called degenerative; but they have no feelings of remorse, even for the gravest crimes, are social in their habits, not solitary, and use the argot, or conventional language of criminals and vagabonds, which is never employed by the criminal by passion or the criminal by occasion. The professional is usually not cowardly like the born criminal. He is temperate, prudent, without real friendships, and his sexual ties are seldom more than transient and unstable. These aristocrats of the criminal world have talents and industry which, directed in legitimate channels, would command respect. With the professional criminal crime is profitable. Dugdale, the author of that remarkable study of crime called *The Jukes*, says: "We must dispossess ourselves of the idea that crime does not pay." Again, he says: "Those who do minor crimes commit about one hundred to one hundred and fifty offenses to *one commitment*, while those who 'go for big money' get caught once out of five times." A great problem is to make crime unprofitable; but this appears to be excessively difficult. The idea of Garofalo is certainly in the right direction. On conviction of a crime against property, strip the criminal of everything necessary to complete restitution; or if no property can be reached, let the hard labor of the convict contribute as far as possible toward that end. As it is, the innocent sufferer finds it more to his advantage to compound a felony

than to aid what is called justice; and often he is deprived of his liberty in a house of detention while the criminal is at large on bail.

It is with the born criminal that the medical profession will have most to do; and the scientific study of this abnormality cannot fail to be of immense benefit to our social system. The born criminal always presents certain distinctive mental and moral abnormalities.

Grouping together the professional, the habitual, and the born criminal, the same differences in intelligence and education are found as in the honest walks of life. Those who are of a low degree of intelligence are forced to limit themselves to crimes that are within the scope of their mental capacity. They replace intelligence with a low duplicity and cunning, and they often act under the direction of others. These most frequently present physical evidences of degeneration. Experience in reformatories shows that many are incapable of education or even of learning a trade which requires a moderate degree of skill. A great proportion of these are incorrigible. While all authorities agree that education in itself is no bar to criminality, it must be admitted that the discipline which is involved in education and the avenues which it opens to honest remunerative labor are favorable elements in reformation when other conditions render this possible.

The chief defect in education observed in criminals is in the line of technical skill. According to the observations of Dugdale, 79.4 per cent. of the criminals examined had never learned a trade. This observation is confirmed by all students of criminology.

What Havelock Ellis calls moral insensibility is always observed in the born criminal. It is very important to distinguish this from so-called moral insanity. General moral insensibility is a want of appreciation of right and wrong from the criminal's point of view—it may be called perversity or depravity—and criminal acts are not followed by repentance or remorse. Those who are regarded as morally insane have no genuine remorse, and the argument in favor of moral insanity without responsibility is based on the notion that the moral insensibility is confined to a

single class of crimes, such as forgery, breach of trust, etc. It is difficult to imagine that a person has a moral defect as regards the crime of forgery, for example, and is entirely honest in other regards. If the idea of monomania is to be discarded by alienists, the idea of moral insanity must also fall. As to the question of monomania, how is it possible that a lunatic shall have a single delusion which his intelligence is incapable of correcting, and yet this intelligence be absolutely normal in all other regards? The mental disease may manifest itself in a single delusion which cannot be concealed; but none the less is it positive proof of mental disease.

The born criminal never has remorse. This is, indeed, pathognomonic of congenital criminality. Bruce Thomson studied this question in four hundred criminals convicted of premeditated homicide, only three of whom expressed remorse. If it is ascertained positively, after a sufficient period of observation and treatment, that a criminal has no real remorse or repentance, it is certain that we have to do with an incurable born criminal.

The general character and mode of life of habitual criminals are interesting and instructive. Such criminals are invariably vain, superstitious, constitutionally lazy and improvident, and are often sentimental and excitable. They are social with their own kind, prone to orgies and to association with a certain class of prostitutes who have the same kind of moral insensibility. They use among themselves the argot, or conventional criminal language, which is quite different from the ordinary vulgar slang. They are fond of tattooing. Lombroso says: "Among male criminals the practice of tattooing is so common as to become a special characteristic." The high-class professional is certainly an habitual criminal, and may be a born criminal; but his habits are usually such as do not interfere with the successful exercise of his profession.

It is impossible to do more than refer to the great questions of atavism, heredity, and environment in their relations to criminality. *The Jukes*, that remarkable study by Dugdale, gives an idea of the terrible influence of heredity. The estimates by Dugdale from the facts

which he ascertained are certainly reasonable. He calculated that the descendants of one individual, making a family of twelve hundred strong, entailed upon the community during a period of seventy-five years an amount of loss and expense equal to \$1,250,000. If any relief is to be expected from the scourge of the posterity of criminals, it is certainly to the medical profession that society must look.

The treatment of criminals is the great social question of the present day. There is no good reason why we should not take advantage of the studies and experience of criminologists and penologists, treating, without malice or resentment, the criminal as a patient as well as crime as a disease; and there is every reason why we should study crime in our prisons in the same spirit in which we study disease in our hospitals and insanity in our asylums. The objects to be kept in view are the cure of the curable by reformation, protection against the incurable, prevention in the way of limiting the development of criminal tendencies in the young, and deterring those in whom these tendencies have become developed. Punishment, as retribution for crime, has no place in this system. Punishment, except as it deters, is of no advantage to society. The spirit of revenge which leads an individual to kill or injure one who has wronged him has no place in the legal protection of members of our social system. What leads so many good citizens to condone crimes against property, if they can secure any degree of restitution, is the fact that it is of no advantage to the injured that the criminal be punished, to a certain extent at his expense and inconvenience. Punishment, however, is a necessary element of discipline, and nowhere is discipline more important than in reformatories and prisons.

The reformatory treatment of criminals is that which appeals most strongly to us as members of a profession whose mission is to alleviate suffering and preserve health and life. We do not ask, Is it worth while to attempt to reform criminals? but simply, Can they be reformed? On this question I can speak with the advantage of some experience.

In 1894 I had the honor to be a mem-

ber of a commission of investigation of the New York State Reformatory at Elmira. This investigation continued for about six months, and during that time I made a careful study of the methods of the institution and the results obtained. These results are most striking and encouraging to those interested in prison reform. The system—which time does not permit me to fully describe—involves discharge on parole after a certain period of treatment. It is estimated—and the estimate seems fair—that out of 3,725 paroled from 1876 to September 30, 1893, 3,051 were reformed, or 81.9 per cent. Out of 4,797 indeterminates discharged, "whether by parole, expiration of maximum term, or any other way, the percentage of reformations was 63.6." These calculations are based to some extent on estimates. In 1887 and 1888 an effort was made "to verify the estimates of probable reformation as to 1,722 prisoners who had been paroled prior to September 30, 1887." Inquiries to prisons, relatives, employers, and acquaintances of the men were made. Definite information was received as to 1,125 of those paroled. Of that number reliable information was received that 78.5 per cent. had not fallen into crime. This would give a percentage of 51.28 known to have been reformed out of a total of 1,722 paroled. After six months of satisfactory conduct on parole a prisoner receives an unconditional release.

The agencies which operate in bringing about these remarkable results are the following :

1. The indeterminate sentence, which gives hope of release and incites to efforts at reformation on the part of the inmate.

2. The strict and inflexible discipline, including military training. Most inmates have never been taught self-control and have never been subjected to discipline.

3. Physical training, with no opportunity for committing excesses of any kind.

4. Removal from surroundings and associations of a demoralizing character.

5. Education and technical training. Pike, the distinguished author of *History of Crime in England*, says: "There is one great preventive for crime, one

great antidote to instincts inherited from the past, and that is education."

To summarize, a criminal by instinct, his criminality fostered and developed by surroundings, absolutely illiterate, without a trade or means of earning an honest living, with a feeble and vicious physique, may be discharged from the reformatory on parole, physically well and strong, with an education not beyond his station, a skilled mechanic with good employment under honest surroundings. He has six months in which to learn self-reliance, and is then a free man. The Elmira Reformatory well deserves its position as the model institution of its kind.

It is so rare that a criminal more than thirty years of age—except the criminal by passion and the criminal by occasion—is reformed, that such are excluded from the benefits of purely reformatory institutions. The objects in the treatment of these and of the incorrigible younger criminal are the protection of society and deterrence by example and fear of consequences of crime. Imprisonment and protracted surveillance of habitual criminals is an essential element in the protection of society against the habitual criminal; and an imprisonment which has no attraction of any kind. An imprisonment at hard labor, the prisoner supported by the barest necessities of life, with the most rigid discipline and persistent surveillance after release, is what is required, not as retribution, but for protection alone. A dangerous man, like any dangerous animal, should be prevented from doing harm. We confine a dangerous lunatic, largely for our own protection; but not under conditions intended to deter men from becoming insane or to deter other lunatics from committing violent acts, as is evident. Although an habitual criminal may be one by heredity and instinct, he is still capable of a certain self-control and can appreciate the consequences of criminal acts. When these consequences show little chance for profit and involve seclusion from society, at hard labor—which is always repugnant to the born criminal—and with no comforts or distractions, they can not fail to exert a deterrent influence; but humanity demands that criminal jurisprudence and administration should

carefully separate from the class of incorrigible and habitual criminals the criminals by passion and by occasion.

The idea of restitution and reparation enters very little into the existing methods of treatment of criminals. Crime should be rendered as little profitable as is possible; and in simple justice the State should force the criminal to make restitution and reparation to the injured to the fullest possible extent. Nothing will more efficiently deter from crime than taking away or largely diminishing the profits of criminal acts. This idea of restitution and reparation pervades the Italian school of criminology and is well represented by Garofalo. Speaking of a certain class of crimes against property, Garofalo, quoted by McDonald, says:

"For this there is nothing better than the forced payment of the fine and damage to the injured party. This would produce other advantages to society. An unfaithful cashier or fraudulent bankrupt would know that if once discovered he could not enjoy the smallest part of the money stolen, but would have to return all, every penny, or otherwise he would have to work for an indefinite time for him whom he had robbed. This is a forcible way of causing the sudden reappearance of the sum that might be thought to be in the hands of consorts. This is much more useful than imprisonment for a fixed time, which is no profit to any one, and only adds to the damage from the crime the expense of supporting the prisoner. If the money has really been spent the offender must work without respite for the repayment of the injured party. If he will not do it voluntarily, he will be obliged to do it by working for the State, where there is no bread without labor. If, in spite of his efforts, he is unable to gain a sufficient sum, after a certain number of years, according to his age or his good-will, this constraint can be fixed to ten or fifteen years; but this term should be lengthened as soon as a want of assiduity is noticed. If the delinquent fulfills all his obligations, he is to be released, and deprived only of his political rights, with interdiction of any public function, or of exercising commerce, if it is a case of a bankrupt."

The history of criminality is full of solemn warnings of dangers incident to existing systems in the treatment of crime, and the greatest of these is heredity. The history of *The Jukes* conveys this warning in the strongest possible manner. We are justified by public opinion in protecting ourselves from the dangerous insane by perpetual confinement. The dangers we have to provide against from the habitual criminal are much greater, as he is an enemy with more or less intelligence, acting with method and in concert with others. All criminologists agree that such criminals, when irreclaimable, should be put under perpetual confinement or surveillance. Dugdale says: "In dealing with the habitual typical criminals who are contrivers of crime, criminal capitalists and panders, where we can not accomplish individual cure we must organize extinction of their race. They must sternly be cut off from perpetuating a noisome progeny either by the propagation or perversion of a coming generation. The old laws attempted this extinction by hanging; but for us it must be perpetual imprisonment, with certain mitigations to guard against barbarity. For this class, congregate imprisonment is perhaps the most suitable."

Dugdale evidently did not care to suggest a method of organizing "extinction of their race"; but one less severe than hanging readily suggests itself. It would be not difficult to devise a method of sterilization of irreclaimable born criminals which would not offend sentimental public opinion; this to be applied, not as a punishment for any particular class or classes of crime, but merely for the protection of society, and after a full scientific investigation of every case.

Casein in Woman's Milk.

Wroplewski (*Centralbl. f. Gynak.*) has made researches into the comparative properties of casein in woman's and casein in cow's milk. The casein is different in the two kinds of milk. In woman it contains less carbon, nitrogen, and phosphorus, but more hydrogen and sulphur. The solubility of the casein differs, and different chemical changes go on when cow's or woman's casein is submitted to gastric digestion.

ABSTRACTS.

EPIDEMIC INFLUENZA, 1889 TO 1895.*

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So thorough has been the study of influenza during the past century and a half, and so many have been the monographs and volumes written, that it seems presumptuous to add to the list.

To this generation of practitioners the disease was only a matter of history until 1889. Since that winter we have seen the spread of the scourge five times, and may now draw lessons from personal experience.

Etiology and History—The early epidemics were wide-spread, usually following the passage of armies or pilgrims. The cause was looked for in sudden changes of temperature or of the winds, occurrence of earthquakes and comets. A little before the middle of this century, it was believed that a specific material cause existed, and "influences" were therefore discredited. Volcanic dust and vegetable spores gave place to the theory of a germ. Pfeiffer and Canon (1892) independently demonstrated such a germ; the one in bronchial secretions, the other in the blood of influenza subjects. The bacillus is the smallest yet discovered, but develops characteristic drop-like colonies on glycerin-agar. It was not found in those not suffering with influenza. Inoculations gave positive results in apes and rabbits, so that we may safely say the case is proven. Many observers have found streptococci, staphylococci, and the diplococci of pneumonia, showing that the circumstances adapted to one are congenial to the other.

The telluric and atmospheric influences which absorbed attention one hundred years ago, should not be dismissed with derision, for we may now study them in reference to the development and spread of the germ. For this purpose I have arranged a table showing a number of cases observed during each

month of each epidemic, with the temperature, humidity, and barometric pressure for the time, and also for the months preceding and following:

TABLE SHOWING RELATION OF ATMOSPHERIC CONDITIONS TO PREVALENCE OF INFLUENZA.

MONTH AND YEAR.	Number of Cases.	Average Temperature.	Humidity—per cent.	Barometer.
1889—				
November	46	75	30.08	
December	65	41	78	30.17
1890—				
January*	103	40	70	30.22
February	40	76	30.12	
1891—				
February.....	38	77	30.00	
March	51	38	73	30.10
April†	133	52	69	30.00
May	42	60	67	30.03
June	70	72	29.96	
December.....	29	42	74	30.17
1892‡—				
January.....	10	30	76	30.05
February.....	33	74	30.14	
1893—				
November	44	74	30.12	
December.....	36	35	74	30.14
1894—				
January.....	15	34	78	30.17
February.....	18	29	75	30.16
March	2	44	72	30.11
April.....	49	73	30.04	
May	3	60	74	29.97
June	70	70	30.00	
December.....	1	36	73	30.14
1895—				
January.....	159	30	77	30.07
February	21	25	68	29.96
March	16	36	67	30.01
April.....	8	.....	.....	.....

*During January, 1890, there were 264 deaths from influenza in New York City. Total deaths, January, 1890, 2,299, against 1,014 in previous years.

†507 deaths from influenza in April, 1891.

‡A few cases were reported during the spring and summer of 1892.

From this table it will be seen that in 1890 the greatest number of cases occurred in a temperature of 40° and humidity of 70 per cent. In April, 1891, the temperature was higher, viz., 52°, but the humidity lower, *i. e.*, 69 per cent. In January, 1895, the extremes were still more marked, temperature only 30°, while the humidity reached 77 per cent. It appears, therefore, that the bacillus flourishes under many conditions; history, too, tells us that the disease has prevailed in all climes, seasons and altitudes.

The relation of humidity to death-rate is, however, to be viewed from a different standpoint. In all epidemics, as at other times, it is difficult for the normal body heat and the pulse to be maintained when radiation is so interfered with. Influenza is extremely enervating and debilitating, and many persons succumb from no apparent complication other than increasing humidity of the atmosphere.

My notes include 732 cases, of which 258 were children. As about one-third of the cases are in the young, it seems that tender age does not afford immunity, nor is the disease one peculiar to childhood.

Age, Sex, and Condition—Influenza is no respecter of persons, and attacks the foundlings on Randall's Island to-day as it did the great George Washington a hundred years ago.

My youngest case was two months old, but other observers report earlier, a congenital case being recorded by Dr. Townsend. Thirteen of the cases were under one year of age. Since 1889 we have witnessed the spread of five epidemics, although the cases of 1892 and 1893 were very few.

Contagion and Incubation—The contagion is virile, and spreads so rapidly that entire families, households and institutions are overwhelmed almost at once. I am informed that in 1889-90 the influenza attacked seventy-five per cent. of the 300 inmates of Randall's Island Infant Hospital. In one ward of thirty-two patients none escaped. Two of these died of broncho-pneumonia. During the same epidemic no cases occurred in the Home for Aged Women, but in the following year half of the inmates were affected.

The disease was brought in by a woman who returned sick after a visit outside. In this house epidemic the incubation period was only twenty-four hours.

Among the cases are noted thirty-four family groups of three or more members. In some instances the development could be watched, one case following twelve or twenty-four hours after another, but, as a rule, extension was so rapid as to thwart tracing communication.

There are numerous records of the first case in different localities. In 1889 our first case occurred on December 18th. On January 6th, two weeks later, it appeared in California. Not until February 11th did it appear at the Soldiers' Home, in Grand Island, Neb. This is the geographical centre of the United States, yet the disease did not take hold here until after the large cities having free communication were infected. If spread by winds alone, all towns would be infected alike, without regard to size or activity.

This illustrates well the spread of the disease by contact or contagion from one city to another, and how the germs are carried by persons to places before free from disease. The influenza had a grip on the entire breadth of the Union in fourteen days. One hundred years ago the territory could not have been covered in as many weeks.

Facilities for travel regulate the spread of influenza. The epidemic of 1803 covered Great Britain in four months, and remained six weeks in a place. The 1889-90 epidemic lasted six weeks here, but that of 1891 continued eight weeks. In 1894 the unwelcome guest tarried three or four months before it was entirely lost.

The siege of 1895 began sharply in January and dwindled away in April. The late cases in each of these epidemics, the aftermath we may say, were mild, and shorter in duration than those that occurred early. This may be due to the fact that susceptible persons succumb early, or that the contagion is attenuated and less virulent toward the end of the epidemic. All epidemics have this characteristic.

Symptoms—The poison of influenza interferes with the functions of many

organs of the body, and so gives rise to a great variety of symptoms. In the majority of cases the leading symptoms are referable to the *respiratory*, the *nervous*, or the *digestive* system. We may, therefore, consider the cases in three classes, or as of three types. The disease is primarily a catarrh, and hence sneezing, coryza, and irritation of the throat are early symptoms. The trouble may be more severe in some parts than others, so as to result in exudative tonsillitis in one case, while the next may have marked laryngitis. Suppurative tonsillitis occurs sometimes. There is a universal congestion of mucous membranes, and consequent cough. Soon secretion is active, and general bronchitis results. In weak persons, at the extremes of life, the abundant secretion caused pulmonary collapse after coughing, and thus starts capillary bronchitis, which is properly lobular pneumonia.

Acute croupous pneumonia occurred but a very few times, so that I look upon it as a coincidence. Many had small areas of consolidation, mild pneumonias, and usually recovered. In a few instances general pneumonia seemed to have begun, but subsided after the congestive stage. Many children in my dispensary district are flat-chested, and have more or less fibroid induration of the lungs. In most instances these children overcame the disease. A few, with bad heredity and hygiene combined, seemed to become subjects of chronic bronchitis. One or two tuberculosis adults dated their illness from an attack of influenza. We know that many germs are always about, and it would be strange if the tubercle bacilli did not locate in some of these weakened lungs. Dyspnea is partly due to nerve prostration, and may be severe when there is little obstruction in the lungs.

Pleurisy was of rare occurrence, as shown by physical signs. Many persons gave symptoms pointing to the pleura; but absence of friction sounds, or dullness would show that the pains arose from the nerves—a neuritis.

Laryngitis of adults leads to aphonia and harsh voice sounds; that of children is usually catarrhal, and causes croupy breathing.

The parotid glands enlarged in some instances, particularly in infants. A

few such also had otitis, with suppuration and enlargement of the upper cervical lymphatic glands. An infant eighteen months old had scarlet fever, from which she was fairly convalescent when influenza appeared in the family. Then bronchitis became severe, digestive disturbances marked, and suppurative inflammation caused perforation of both membrana tympani. This was proved by peroxide of hydrogen appearing in the nostrils when syringed in the ears. Desquamation was never very clear, and I question if all these conditions were not of gripe origin.

Digestive Disturbances—The sudden onset of this strange malady gave little time for malaise and premonitory symptoms, so common during the incubation of other fevers.

Loss of appetite and nausea are common. Vomiting is commonly present in those who have feeble or over-sensitive stomachs. Children's stomachs readily unload from local or reflex causes, and we find many of them with the digestive type of disease, but it is not of long continuance. The bowels are rarely in a normal state, constipation being present early and diarrhoea coming later, and seeming to mark a crisis and return to health.

Nervous System—Blakiston says "that influenza is an affection of the nervous system, with its concomitant derangements of the organs of digestion, circulation, etc."

This is true, and many are the nerve symptoms produced. The poison seemed to overwhelm adults in the epidemic of 1889. Stupor was common; delirium also. Many seemed to lose reason, and thought of suicide. Some persons did take their own lives from this cause. Many were first warned of illness by intense headache, while others first noticed faintness or vertigo.

Many children had convulsions as an initial symptom. The mental development of a child is different from that of the adult, so they had no suicidal tendencies nor prolonged fits of melancholia. However, the langour, depression of spirits, lack of interest in surroundings, and general mental numbness was common.

The pains are intense in this malady, and vary only in seat and degree. Thus,

many persons had trifacial neuralgia who were not subject to it before. Some had such intense pain in the neck as to be unable to move the head. Older children were affected the same way. Nearly all suffered in some degree from articular pains of all joints, and a feeling of severe and deep soreness everywhere. Many of the poor expressed themselves as feeling as if they had been beaten. It is interesting to note that rheumatic subjects are positive that the pains surpass what they are accustomed to.

A form of lumbago and pain in the chest like intercostal neuralgia is of frequent occurrence. Many have pains in the stomach and bowels unlike that due to simple indigestion. Cramps in the legs I noted in some instances.

Convulsions, delirium, and stupor seem most common in the young. Melancholia, less pain, but more pulmonary trouble seem to fall upon the aged. Two pneumonia patients, adults, had active delirium, and one of them attempted suicide.

Chills may usher in the disease, but they are not prolonged or severe. Often slight chills recur. Some observers speak of a quotidian ague forming part of the history. I have not observed cases in confirmation of this. The temperature is three or four degrees above normal, and may rise to 104° or 105°. High temperature indicates a complication, for example, pneumonia. A weak pulse is common, as in most cases of poison acting on the nerves. The kidneys are inactive for a few days, while congestion is everywhere present and normal secretions lessened. The urine is high-colored, of high specific gravity, and may contain albumen.

Complications—Among the complications occurred the following: Otitis, parotiditis, urticaria, jaundice, erysipelas, pertussis, and a baby with hereditary syphilis. The last was an infant five months old, living with foster parents, who were very ill from influenza. The child had snuffles before the influenza, but this was aggravated, and bronchitis added. The boy now (1895) is free from active symptoms of syphilis, but has the usual flat face so characteristic of the disease.

A boy of two years had pertussis in

the autumn of 1889. For two weeks before the grippe arrived he had been free from cough and had taken no medicine. With the attack of influenza, the spasmodic cough returned, and continued for another six weeks. A girl of eight years had a parallel experience.

A case of peculiar interest was that of a nurse who was prostrated by influenza of the neurotic form, with severe headache and stupor. Her temperature was 103° with the grippe. It dropped to nearly normal, and she considered herself convalescent for about two days, when I again found her with a rising temperature. She began to cough and sneeze, and in two days was covered by the eruption of measles. This was just fourteen days from the time she had been attending a family with measles. Her convalescence was slow.

There seems to be a relation between different infectious and zymotic diseases which is in some instances very close. During the winter and spring of 1891 measles prevailed with influenza. In the year 1894 the circumstances were the same, both diseases occurring in winter and spring. During the spring and summer of 1893 measles prevailed without any cases of la grippe. In 1895 a mild epidemic of measles followed influenza.

During the seventeenth and eighteenth centuries there were recorded twenty-six epidemics of measles and twenty-six of influenza. In four instances, *i. e.*, sixteen per cent., they occurred at or near the same time. This is more than a coincidence, and it is reasonable to suppose that the conditions favorable to one contagion may be the same to another. It will be noted that both are primarily catarrhal affections.

One case presented nearly every symptom and complication ascribed to the disease. A healthy Irishman (McEvoy), age twenty-six, began with severe "break-bone" pains and intense headache. In two days he had active delirium, and was with great difficulty kept in bed. He made several attempts to jump from the third-story window. Pain increased in his side, and pleuritic frictions could be heard. The lung steadily solidified, and he seemed a perfect case of pleuro-pneumonia. The temperature reached 105.2°. He had

numerous bloody stools early in the course of his illness. He died at the end of a week.

Croupous pneumonia did occur, though the lobular type was more common. One pertussis case had pneumonia as well as grippe. A genuine pleurisy is not recorded in the list of children, but several appeared among adults. A girl, aged seventeen, in the third stage of phthisis, died two weeks after taking influenza, though death seemed imminent anyhow. A boy of four years had jaundice, complicated by influenza, and then followed by scarlet fever. A cervical abscess then formed, and not very long afterward he had whooping cough and diphtheria. With the latter he had acute nephritis, with scanty urine, containing albumen, blood and casts.

Complete suppression of urine is noted once. This appeared a more frequent symptom in adults.

As to type, the pulmonary prevailed in 1889-90; also in 1893-4. The neurotic type was very manifest in 1891-2. The other epidemics seemed to embrace the three forms alike.

Treatment.—There is no antidote to the influenza toxine. As in other infectious diseases, when the poison is in the system, we must try to sustain the parts liable to suffer from its presence. Elimination must be promoted—from the lungs by expectorants, from the digestive tract by cathartics which increase secretion, from the skin and kidneys by drugs acting on the circulation.

In some cases cardiac depressants will act best, in others stimulants. If general treatment still leaves the patient suffering in some one part, give a symptom remedy for its relief. Phenacetin, antipyrine, or acetanilid proved good for the headaches. Doses must be small for small children. Old-fashioned diuretics and diaphoretics relieved fever and joint-aches. Salicylate of soda came to be my routine for cases with pains and fever, two or three grains being given every three hours to older children. Stimulating expectorants with carbonate of ammonia or champor were helpful after the first few days. To many patients I gave nothing but maltine and carbonate of ammonia. The

latter must be dissolved in water before mixing with the maltine. In this way the irritating effect of the ammonia is obscured, and both food and stimulant are taken every few hours. The older children and adults did well on maltine with cocoa wine, which seemed to be especially adapted for enfeebled nerves.

For slow convalescence, give all the food possible, with remedies that aid nutrition, *e. g.*, beef juice, eggs and milk, wine-whey, malt and iron, or cod-liver oil. Embrocations are helpful; alcohol may be used one night and olive oil the next night. The ancients held embrocations in high esteem, but now we are prone to leave them for the athlete and prize-fighter. The sick and feeble are more in need of them. Alcohol was rarely given, as I do not often administer it to children with any disease. In this I agree with the quaint Dr. Harris, who wrote, in 1690, "All Sorts of Spirituous Liquors destroy the natural Ferment of all Stomachs, especially of those of Children; they weaken all the Nerves of the Body and most certainly drive the animal Spirits into all Sorts of Confusion."

Epidemic influenza is a self-limited disease, which we cannot cure if we would. Like enteric, or other fevers, we can only treat symptomatically, and guide through the storm from which we cannot escape. A little prophylaxis may be exercised by closing schools on the appearance of an epidemic and by discouraging attendance of assemblies, as lectures, theatres, etc.

In review, it appears that influenza is a very old disease, of which scarcely any new thing can be said. The forms of its occurrence are the same as centuries ago. The leopard has not changed his spots. It travels as of old, except faster, as people travel. The mortality is the same, even under nineteenth century treatment, relatively few dying directly of the disease, but many of secondary complications. The aged suffer most and the children least. The latter escape because they rarely have organic diseases. The one thing we have discovered is the cause. But how to meet and annihilate it remains to be demonstrated.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF SAMUEL M. WILSON, M. D.

A Successful Operation for Intussusception in a Baby Four Months Old.¹

The patient was a perfectly healthy child when born, five months ago, and has always nursed well, but has, since birth, suffered more or less from diarrhoea, with green and sour-smelling stools. In November he began to be restless and fretful, and continued so for two days, when the stools began to be bloody, slimy, and more frequent, and he began to vomit after nursing. Dr. F. M. Sharpe made the diagnosis of intussusception, and insisted upon immediate removal to the hospital, where I first saw him in consultation.

Abdominal palpation revealed a sausage-shaped tumor occupying the left lumbar and iliac regions and dipping down into the pelvis, while the right side of the abdomen seemed, by comparison, empty. With the finger in the rectum, the descending bowel could be distinctly felt about two inches above the anal ring.

Under chloroform, an attempt at reduction by inflating the bowel with air through a large catheter from a small hand-bellows resulted in the dislodgement of all but about eight inches, which now occupied the right hypochondrium. No time was lost in opening the abdomen by a median incision from the umbilicus to the pubes under antiseptic precautions. Still impossible to bring the intussusception into view, the incision was enlarged upward to a point about one and one-half inches above the umbilicus. Reduction was now completed fairly easily. The appendix vermiciformis, cæcum, and the beginning of the ascending colon were highly edematous and covered with lymph, but no signs of strangulation were visible. The abdominal incision was closed by figure-of-eight silk-worm-gut sutures, a protective dressing applied, and the patient put to bed in good condition.

The entire procedure did not occupy more than half an hour. The temperature and pulse, respectively 99° F. and 128 on admission, were 98° F. and 160 after the operation. Twenty minims of paregoric was immediately given, and this dose was repeated three or four times in as many days when the bowel movements became too frequent or the baby seemed in pain. The first defecation occurred about twelve hours after reduction, and, like those which followed it for the first few days, contained some blood, the amount diminishing daily.

Immediately after the operation, feeding an ounce of peptonized milk with a dram of liquid peptonoids, every two hours, was begun. After the first forty hours the mother nursed the baby regularly. The highest temperature—102° F.—was recorded sixty-four hours after operation. The incision healed *per primam*, and the stitches were removed and the patient discharged on the fourteenth day.

The symptoms and physical signs were pathognomonic, and the history of the case shows the importance of prompt recognition and early oper-

ation in this alarmingly fatal accident of early childhood.

A Study of Race Egotism.²

After reviewing a number of incidents in the life of Carlyle, the writer concludes that he was not insane, but simply acted as a Scotchman in his peculiar position and age might be expected to act. He summarizes his article by quoting Jeffreys: "The great source of your extravagance and of all that makes your writings intolerable to many and ridiculous to not a few, is not so much any real peculiarity of opinion as an unlucky ambition to appear more original than you are."

Two Cases of Railway Spine With Autopsy.³

These cases are interesting because opportunity for autopsy in such instances is rare, and because the element of litigation did not enter into the first case.

An upholsterer, 47 years old, fell from a bridge, striking his head and back on a mound of earth thirty feet below. While unconscious he was taken to a hospital and on awakening felt confused, suffered from pains in the back, and his body trembled. The next two and one-half years were spent, partly at home and partly in hospitals, sometimes improving greatly and then after exertion relapsing. The symptoms were excessive sprain, with marked spasms of the muscles of the back and trunk and tremor, with increased reflex excitability, disturbed sleep, sudden awakening with fright, excessive sweating, frequent micturition, occipital headache, tinnitus aurium, and marked general weakness. At the autopsy no gross changes in the nerves or nerve centres were found. There was slight fatty infiltration of the liver, a slightly granular condition in the kidneys, and a few patches of commencing atheroma in the larger vessels. Staining, by Weigert's method, and microscopic examination showed nothing further.

Case 2. A contractor, aged 46 years, while attempting to drive across a railroad track in January, 1893, was thrown into the air by an express train, and engine and tender passed beneath him before he fell on the roof of a car and thence to the ground. He was removed to a hospital while unconscious and found to have lacerations of the forehead, scalp, and nose, and contusions of the trunk, and particularly of the left shoulder. In a few hours he regained consciousness and was found to have little if any power in his left leg and arm. About a month later the writer saw him in consultation. There was marked flattening of the left supra and infra spinatus muscles, and atrophy of the left deltoid; the left arm hung almost uselessly, and motion at the shoulder and elbow was restricted and painful. The left

¹J. Bion Bogart, M. D., *Brooklyn Medical Journal*, September, 1895.

²James E. Kiernan, M. D., *Alienist and Neurologist*.

³F. X. Dercum, M.D., *Journal of Nervous and Mental Diseases*.

hand and fingers were smooth and glistening. Pressure over the brachial plexus and the mid-dorsal and mid-lumbar spine was painful. Flexion forward or to the right caused pain referred to the mid-dorsal region. Slight paresis and recurring spasm of the muscles of the right half of the face also were noted. Tactile sense remained, but in the right leg and right half of the trunk sensation for pain was lost. The analgesia extended to the level of the right nipple and was fairly defined by the median line anteriorly and posteriorly.

The sense of temperature was abolished in the right leg and abdomen to the false ribs; above these it was present, though diminished, and like the analgesia it was limited by the median line. The cutaneous reflexes seemed diminished, and the knee jerks unchanged. The man was very weak, but mentally clear and without much depression of spirits.

When seen again in consultation in May, all the previous symptoms were noted. In addition the man looked badly, and the left brachial monoplegia and muscular atrophy were more pronounced. In November there was found an almost complete loss of voice and a difficulty in swallowing solids. The muscular twitchings were more marked and present on both sides of the face. No reaction of degeneration, but merely slight quantitative diminution was found. The tongue was deflected to the left when protruded and the left side was smaller than the right. Taste was lost on the anterior two-thirds and diminished on the posterior third. The sphincters were unaffected throughout. The pupils are small and react feebly to light, but readily to accommodation. Dr. J. Solis Cohen made a laryngoscopic examination and reported the left vocal band as completely paralyzed in a position just within that usually seen in a cadaver, its border so depressed that it looked broader than when in the normal position, and partially applied towards the external portion or wall of the laryngeal canal. Its aryepiglottic fold was tenser than that of the right side. The right vocal band reached the middle line, but being on a higher plane than the left one was unable to reach it, and hence there was complete aphonia. As the paresis twitching of the facial muscles and slight wasting of one side of the tongue suggested unclear disease, it was thought probable that the hemiparesis of the larynx had an nuclear origin. Thoracic aneurism was considered possible, but physical examination failed to reveal it.

In March, 1894, a large effusion was found in the left pleural cavity, and the patient died a few days later. At the autopsy a large fusiform aneurism of the descending arch and thoracic aorta was found to have ruptured into the left pleura. Careful microscopic examination of the brain and cord gave no decided result. Unfortunately it was impossible to use the more modern stains, and the Weigert process was used.

Hysterical Amblyopia and Amaurosis.⁴

We may define hysteria to consist of such a condition of the general nervous system, original or acquired, as renders it capable of simulating most local diseases, of complicating them in their progress, and modifying them in their usual phenomena. Defective vision is one of the less familiar forms. This special form of functional trouble, not due to alcohol or tobacco, is by no means a common one; this is especially true in regard to the cases of amaurosis; those of amblyopia and narrowing in the fields of vision being more frequently met with. The onset is usually sudden following a shock, and there is usually more or less photophobia, and sometimes anaesthesia of the cornea. Local examination shows no other symptoms. Complaint is made of ocular or supra orbital pain and great sensibility to light. There may be absolute loss of sight, generally in one eye, or only amblyopia and reduction of the field of vision.

Four cases of this condition are reported, the treatment by hypnotic suggestion alone being successful in three of them; but the fourth, although somewhat relieved by this, was cured only after the expulsion of a tapeworm by malefern. A fifth case was totally unaffected by hypnotism.

In the discussion which followed, Dr. Prince of Boston stated that hysterical patients when hypnotized could often accurately describe sensations, sounds, and appearances which they had been impressed with in their normal condition, but had at that time seemed ignorant of.

Spot Specialism.⁵

Refers to that kind of professional thought that confines its observation too exclusively to a particular locality, organ, or group of organs.

The general medicine of Hippocrates, and followed by that of Sydenham, blamed the liver for most of the diseases, and Abernethy traced everything to a disordered stomach.

Nervous atony precedes as well as follows hepatic torpor and dyspepsia, and malaria is a frequent cause of the atony and congestion.

When one is ill the entire system is more or less in need of attention; not simply the most afflicted spot.

In treatment of constipation we now see the need of drugs, such as nux vomica and belladonna, to impress the whole system, instead of relying on mere cathartics.

Neurasthenia and brain exhaustion are often the forerunners of dyspepsia, and the resulting distension of the stomach by gases leads in turn to irritable heart and disturbed respiration.

Numerous other disorders are mentioned, and the influence of a disturbed nervous system is easily traced in most of them.

⁴J. Arthur Booth, M.D., *Journal of Nervous and Mental Diseases.*

⁵C. H. Hughes, M.D., *Alienist and Neurologist.*

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Pseudo-Chancere.

Gottheil, in a paper read before the Section of Dermatology and Syphilography of the American Medical Association (*New York Medical Journal*, September 28th, 1895), concludes:—

Reinfection syphilitica does occur, but the recorded cases that are entirely trustworthy are very few indeed. Analysis shows that most of the alleged cases are open to grave doubt, and that some of them are manifestly errors of diagnosis.

The following lesions may simulate chancre:

- a. Artificial indurations caused by irritants applied to simple lesions.
- b. Nodular lymphangites, as occur in gonorrhoea.
- c. Scabies, where penile lesions are the rule.
- d. Secondary indurations at the site of the initial lesion (Fournier's pseudo-chancere).
- e. Secondary syphilitic papules or tubercles situated upon the genitals.
- f. Ulcerative gummata of the genitals.
- g. Epitheliomata of the genitals.

Two such cases have recently come under the author's observation. In the first one a non-specific sore was irritated with cauterants until it exactly resembled a sclerosis, and was so diagnosed by competent authorities. Nevertheless it healed up under local treatment alone; and until now, two years after date, no secondary symptoms have appeared.

The other case was one of gumma of the penis in a subject in the tertiary stage of syphilis. The lesion resembled an initial one very closely, and was at first regarded as such; but a close examination showed the presence of evidences of past specific disease, and this was confirmed by the history. The entire lesion melted away under the iodide of potassium.

Conclusions:

1. There is no characteristic sign, and no characteristic combination of signs, that enables us to diagnose a chancre from the lesion alone.
2. Only the advent of other syphilitic symptoms enables us to form an opinion as to the presence of systemic infection.
3. Almost all the alleged cases of syphilitic reinfection are of doubtful validity; and most of them are pseudo-chancres belonging to one or other of the above varieties.

Motor Aphasia.

Prevost (*Rev. Med. de la Suisse Romande*) describes a case of Jacksonian epilepsy accompanied by motor aphasia but without agraphia, conclusively proving that the former may exist without the latter. The patient was a man of about 60, who had suffered from neurasthenia with indefinite symptoms for some years. He began to experience a difficulty in expressing himself; this was followed by an epileptiform attack with com-

plete loss of consciousness, and afterwards by a series of fits. In these the patient hesitated in his speech, took his chin in his left hand, turned the head convulsively to the right, and had an access of clonic convulsions in the right facial region, with grinding of the teeth. The fits occurred every fifteen minutes and lasted about one minute and a-half. They were followed by temporary loss of speech, and at the end of a day by lasting aphasia. The intellect was throughout unimpaired, and he was able to write freely without hesitation or mistakes, and to write what had been dictated to him during the fit immediately afterwards. There was no paralysis nor alteration of sensibility whatever. A syphilitic lesion, probably a gummatous tumor, involving Broca's convolution, was suspected, but a very doubtful history of the disease was obtained. The treatment was gr. x of pot. iod. every three hours, and two mercurial inunctions daily. The fits ceased abruptly after lasting over a week; speech returned at once, all neurasthenic and other symptoms disappeared, and in a few months he was practically cured. Six months later the symptoms returned, but were marked by an attack of complete right hemiplegia which supervened. Subsequent treatment had proved ineffectual. The aphasic phenomena were remarkable, being unaccompanied by paralysis during the attacks, or by word-blindness, word-deafness, or verbal amnesia. The patient could always read and write, except after one or two major epileptic attacks. The condition is rare, the centres of speech and writing being so closely placed that they are generally involved in the same lesion. The question is discussed whether there exist in the brain special accessory centres developed by use, and whether the multiple centres said to preside over the function of language are among these. There is too great a tendency to regard language as a special and isolated phenomenon among the manifestations of the nervous centres, and the development of an automatic act, such as writing, may be simply controlled by a special adaptation of conducting fibres uniting the different sensorial centres. A study of aphasia in violinists, pianists, typewriters, and others trained to express their ideas by automatic means involving more highly specialized action than writing, may help to elucidate the true theory of this subject.

Epidemic Cerebro-Spinal Meningitis.

Righi (*Rif. Med.*) reports three cases of this disease in which he found the diplococcus of Fraenkel in the blood, the urine, and in one of the cases in the faeces. In each case the diplococcus was actively virulent and gave rise to cultures which proved active upon inoculation. The cases occurred in children of 16, 3, and 13 years respectively, and formed part of an epidemic of the disease which occurred in Sassari. The first two patients died; the third, which was a milder case, recovered. But even in this case the diplo-

cocci were freely found in the blood and urine, so that it cannot be said that the diplococci are only associated with severe cases.

Quadu (*Rif. Med.*, July 8th and 9th, 1895) reports another case (one of the same epidemic) in a child aged 6, who recovered, and in whose blood the same diplococcus was found. This case was also interesting from the fact that it was complicated by the development during the disease of a periarticular abscess about the left knee-joint and by a left otitis media with perforation. In each case the pus contained the diplococcus, that of the ear also containing the staphylococcus cereus albus and a slender somewhat recurved unfamiliar bacillus. In addition to the otitis and abscess the patient also suffered from arthritis of the right shoulder-joint.

Colomel as a Substitute for Iodoform.

An Italian physician, Dr. G. B. Percacini, is in the habit of replacing iodoform by calomel for dressing all kinds of wounds and sores, more particularly ulcers of the leg, as well as eczema resisting ordinary treatment. When, applied, in the form of powder, to a wound which has first been thoroughly cleansed, this substance forms an antiseptic crust, strongly adhesive, and when this becomes detached the wound is found to be completely cicatrised. According to Dr. Percacini, the use of protochloride of mercury for dressings is contra-indicated only in cases of wounds and sores with excessive secretion, seeing that in such cases the pus would be retained under the crust formed by the powdered calomel.

SURGERY.

Insomnia in Surgery and its Treatment.

Van Schaick (*New York Med. Journ.*, March 2, 1895) directs attention to the various forms of insomnia met with in surgical practice. The fear of an impending operation, though no longer so intense as in preanaesthetic days, is yet an important factor in some cases, and hence requires treatment. The author knows of no better hypnotic for this purpose than trional given in a 15-grain dose, followed up if necessary by another one within an hour. This drug is preferred on account of its comparatively rapid action, of its lack of after-effects, and of the deep sleep it induces. It has also been found very useful in cases of depreciated nervous condition due to exhausting diseases and pain, in which chloral, though a more effective sleep-producing drug, is contraindicated from its action as a heart depressant. Restlessness and jactitation occurring after an operation without serious shock—a condition probably due to relaxation of a highly-strung nervous condition—may also be relieved by trional in moderate doses. Abdominal section, in which thirst is apt to complicate the other nervous disturbances, is also very frequently followed by insomnia of a more or less severe type. In two in-

stances of this kind trional given by the rectum has in the author's hands proved quite successful. This drug is further recommended in cases of insomnia due to certain pathological nervous conditions which may complicate surgical disorders—such, for instance, as alcoholism, arterio-sclerosis causing intracranial headache, insanity, tabes, and other diseases of the cord, and the results of the abuse of narcotics.

NEWS AND MISCELLANY.

OFFICIAL LIST OF THE CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING OCTOBER 15, 1895:

R. D. Murray, surgeon, granted leave of absence for thirty days, October 4, 1895.

Fairfax Irwin, surgeon, granted leave of absence for thirty days, October 4, 1895.

C. E. Banks, P. A. surgeon, detailed as Chairman Board for physical examination of officer and candidates Revenue Cutter Service, October 2 and 8, 1895.

S. D. Brooks, P. A. surgeon, when relieved from temporary duty at St. Louis, Mo., to rejoin station at Chicago, Ill., October 3, 1895.

L. L. Williams, P. A. surgeon, to proceed from Charleston, S. C., to Waynesville, Ga., as inspector, October 2, 1895.

G. M. Magnider, P. A. surgeon, upon completion of duties at Camp Jenner, Eagle Pass, Texas, to rejoin station at Galveston, Texas, October 11, 1895.

J. O. Cobb, P. A. surgeon, to proceed to Victoria, B. C., and Vancouver, Wash., on special temporary duty, October 12, 1895.

B. W. Brown, P. A. surgeon, detailed as Recorder of Boards for physical examination of officer and candidates Revenue Cutter Service, October 2 and 8, 1895.

E. R. Houghton, P. A. surgeon, granted leave of absence for thirty days from date of being relieved from duty at Vineyard Haven, Mass., October 5, 1895.

Emil Prochazka, assistant surgeon, when relieved from temporary duty at Charleston, S. C., to proceed to Cairo, Ill., for temporary duty, October 12, 1895.

A. R. Thomas, assistant surgeon, relieved from temporary duty at New Orleans, La., and directed to rejoin station at St. Louis, Mo., October 3, 1895.

J. B. Greene, assistant surgeon, relieved from temporary duty at Wilmington, N. C., and directed to proceed to Vineyard Haven, Mass., and assume temporary command of the service, October 2, 1895.

RESIGNATION.

E. R. Houghton, passed assistant surgeon. Resignation accepted, to take effect upon expiration of leave of absence, October 5, 1895.